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TABLE OF CONTENTS ON PAGE XXXIV

IN THIS ISSUE:

Dr. J. P. Mullen—Coronary Thrombosis
Dr. P. Brooke Bland—Fetal Birth Injuries
Dr. D. N. Barber—Influenza
Dr. R. C. Farrier—Immunizations and Vaccines
Dr. J. M. Moore—Osteoporosis Following Trauma
Dr. Thomas P. Sprunt—Arterial Hypertension

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CORONARY THROMBOSIS*

By J. P. MULLEN, M. D.
Wellsburg, W. Va.

THE striking number of heart deaths from coronary disease, particularly among the intelligent class, has been sadly called to our attention within the last few years. As one of the causative factors, coronary thrombosis plays a striking role and I feel that a review of the literature on this subject might be of value; as it is to the general practitioner that these patients are first presented for diagnosis and treatment. It is a disease that has been recognized only within recent years, and no particular literature has been available until the last decade.

Coronary occlusion is usually caused by a thrombus of either the right or left coronary artery or one of their branches. Briefly the pathologic lesions responsible for occlusion are as follows: In the majority of the cases there is a coronary arteritis. This may be severe enough in some cases to be the sole cause of the occlusion but in most instances the final step is the formation of a thrombus at the site of the atheromatous constriction of the vessel. A less frequent mode is the degeneration and a break in the endothelium in an atheromatous area allowing a dissecting aneurysm to form between the intima and media and by compression cause the occlusion. Another source of coronary occlusion is that seen in syphilitic aortitis; when the sclerosis of the intima of the aorta causes an obliteration of the coronary orifice, particularly is this possible if there is an anomalous location of the coronary orifice above the sinus of valsalva. Embolic closure is possible but rare and is usually secondary to a bacterial endocarditis.

Coronary thrombosis is a disease of the latter decades of life. In Levine's series of 155 cases, the largest number occurred between the ages of 60-70, the average age being 57.8 years. It is uncommon before the fourth decade although it has been found at autopsy in an individual 22 years of age. I had it occur in a patient who was 32 years old. It is much more frequent in males. In the Klotz and Lloyd series, 90% of their cases were men. Connor's series of 287 cases showed 243 in men and 44 in women. Levine reported 111 men and 34 women.

Viewing the uniform preponderance of males over females in coronary thrombosis, it is interesting to point out the relatively higher incidence of arteriosclerosis in men

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throughout the latter decades of life. If coronary disease is considered as a manifestation of general arterial breakdown it is not difficult to understand the preponderance of males over females.

Hypertension, hand in hand with arteriosclerosis, is found in 80% of the cases and is one of the most important predisposing causes to coronary thrombosis.

In the reported series of cases all fairly well agree as to the prognosis of the first attack; approximately 50% die and death occurs by the following mechanism:

If the infarcted area lies in the ventricular musculature, the state of anoxemia of the musculature gives rise to electrodynamic changes. The musculature becomes hyperirritable and many foci may give rise to ectopic beats. When several become operative, ventricular tachycardia will develop; if the number is sufficient, ventricular fibrillation will develop with sudden death ensuing.

Symptomatology: The most outstanding symptom of coronary occlusion is pain, intense, prolonged, almost unbearable in type. In contra-distinction to the pain in angina pectoris, which frequently follows exertion, gastric distension, thermal changes or mental excitement, it frequently occurs when the coronary circulation is at its minimum degree of activity. As Aschoff has indicated thrombosis of any blood vessel is facilitated by the following factors: reduced velocity of the blood stream, lowered blood pressure, pathologic changes in the vessel wall and certain changes in the blood constituents, both chemical and cytological. Thus with the heart at rest all of the various elements necessary for thrombosis and occlusion are increased. This explains the frequent occurrence of the condition while the patient is asleep or at rest, although it can and does occur in an increased coronary circulation. The pain is similar to that seen in angina pectoris but is usually more intense and persistent. The pain of angina usually lasts but a few minutes to a half hour while that of coronary occlusion lasts for hours and usually for several days, gradually abating in its intensity. The description of the pain by the patient usually depends on the richness of his vocabulary. Some describe it as a terrific vise-like oppression over the sternum and chest radiating to either one or both arms. Goethe speaking of an attack once said that, "It was as if the devil had grasped his heart and was trying to tear it from his body." Bastinelli, the Italian clinician referred to a sabre thrust through the heart being preferable to the pain of coronary thrombosis. The radiation of the pain may utilize any of the pathways in the angina pectoris neurologic arc, although occasionally it may be confined to the substernal area; it may be referred to the face or teeth, above one eye, to the back or to the shoulders and down the arms. Radiation downward into the abdomen occurs and the differentiation from abdominal pathology may tax the ingenuity of the attendant, as it may simulate gall-bladder disease, acute pancreatitis, ruptured duodenal ulcer, etc.

In the differential diagnosis from abdominal pathology certain outstanding factors have been pointed out by Levine, Christian, Riesman, Deaver and Johns—1st age. Coronary thrombosis is a disease essential of middle and advanced age periods; 2nd, it is more common in men than women; 3rd, there is usually a history of previous cardiovascular involvement; 4th, poor quality of the heart sounds, alternations or irregularity of the pulse and the sudden drop of the blood pressure are the rule in coronary thrombosis; 5th, the peculiar ashen gray color of coronary thrombosis is quite unlike the so-called hippocratic facies of peritonitis; 6th, while the distension may be the same in both conditions, tenderness and rigidity are not localized in coronary thrombosis; 7th, there are usually signs of failing circulation, such as edema of lungs and frequently painful dyspnea in occlusion; 8th, when the anginal syndrome accompanies coronary thrombosis, the typical symptoms of the former condition may be present; 9th, when a pericardial friction rub occurs it is usually pathognomonic of occlusion. And finally the electrocardiographic

changes may be present which we will enumerate later.

Pain as a rule is the outstanding symptom but it may be entirely absent when there has been a slow progressive degenerative change and when the smaller twigs of the coronary tree have been involved. This occurs only in the aged and I wonder if the shower of ectopic beats that appear in older individuals may not be due to electrodynamic changes superinduced by occlusion in the smaller branches of the coronary circulation.

Hand in hand wtih the onset of the agonizing pain, one is immediately struck with the prostration of the individual. The expression of the face mirrors the anguish he is suffering. The color is ashen gray and the imminence of death is strikingly reflected in his countenance. A cold clammy sweat is present and frequently beads of perspiration cover the forehead. The pulse may be barely perceptible and may at times only be heard with difficulty over the precordium.

The blood pressure phenomenon is of marked diagnostic importance. The drop which occurs in blood pressure levels is one of the characteristic features in differentiating it not only from ordinary anginal attacks but also from the various clinical syndromes which are simulated by coronary thrombosis. A sudden drop of 50 or more points is the rule and I have seen a drop of the systolic level of 100 points. The fall usually occurs within a few hours of the onset of the attack, depending on the degree of heart muscle damage suffered by the occluded area is the amount of the depression proportionally influenced. The depth of the fall is usually reached within 24 hours. Friedman, Mackenzie and others have all pointed out that the reduction in blood pressure is, as a matter of fact, a life-saving attempt on the part of the heart to maintain its functional integrity. When occlusion occurs not only is the physiologic property of tonicity disturbed but the strength of the myocardial fibres themselves are destroyed and if the usual pressure were to be maintained but one result would be inevitable—rupture with immediate death. When the intracardial pressure is markedly reduced less strain is placed upon the weakened musculature and the hazard of rupture is thus materially reduced. A hazard of especial seriousness are those cases in which the fall of pressure is so great or so disturbing to renal function that urinary suppression occurs and the added confusion of uremic symptoms develop.

The discovery of glycosuria is not infrequent during the first few days of the attack, due to alterations in the renal threshold. If the patient is a known diabetic, the sugar values will consequently be higher, if a nondiabetic, sugar will spill over for only a few days. Cannon has pointed out that instead of an altered renal threshold, glycosuria may be present as a result of emotional stress, particularly that of fright, pain or shock.

Hæmaturia may be present due to mural thrombi lodging in the kidney substance. This condition occurred in one of my patients and was present for several days with considerable blood present in the urine.

In treating a too rapid fall of blood pressure levels one must choose between the hazards of maintaining a systolic level too high for the weakened heart muscle to withstand without rupture on the one hand, and the damages inherent in urinary suppression and cerebral circulatory embarrassment on the other. Each individual case must be decided separately as no hard and fast rules can be laid down.

Dyspnea is another symptom that may be marked and Connor of New York has suggested that there is always a balance maintained between the degree of pain and that of breathlessness occurring during a single attack. Where the pain factor predominates the dyspnea is usually less while in those cases exhibiting extreme dyspnea the pain element plays a minor role. I had this beautifully exemplified in one patient the first part of whose attack was characterized by marked pain, but with the development of dyspnea the pain element was gradually overshadowed and finally her dyspnea approched orthopnea with asthmatic breathing, pulmon-

ary edema, marked cyanosis, unconsciousness, Cheyne-Stokes respiration and death. Cyanosis, pulmonary edema, and acute congestion of the liver are all symptoms of myocardial embarrassment and insufficiency and may be present.

Another constant clinical finding during a coronary attack is slight elevation of temperature. It usually does not make its appearance before the second or third day. The usual elevation is from 100° to 101° F. Levine has aptly pointed out that rectal temperature should be taken as mouth temperature in a patient in shock may vary several degrees from rectal readings. The amount of fever is dependent on the amount of myocardial infarction, the larger the area the greater the elevation of temperature. Once the fever has been established it usually persists for several days up to about two weeks again depending on the amount of damaged musculature. The curve is usually a straight one, varying but little during the course of the day.

Closely associated with the thermal reactions and indeed dependent upon the same factor is that of leukocytosis produced by the toxic absorption of the necrotic materials liberated from the involved area of the heart. This rise in the polymorphonuclear count starts within a few hours after the onset of the accident. The count usually varies between 10-15 thousand although Hamman believes that counts of over 20,000 are not unusual. From a prognostic standpoint Libman believes that the leukocytic index is of far greater importance clinically than the temperature alone as it frequently persists after the temperature curve has reached the base line and he controls the convalescence period by its return to normal rather than that of the temperature.

One of the most interesting and conclusive proofs of cardiac infarction is the finding of a pericardial friction rub. If the infarcted area lies on the anterior surface of the heart, and if the involved region is sufficiently close to the visceral pericardium, a friction rub may be heard. It is caused by an exudative spread over the affected area in an attempt to fortify and repair the damaged tissue. If the area of infarction is posterior or septal in location even if present it will not be audible. Levine in his series of cases heard it in 14%, Hamman once in 10 cases, Hyman and Parsonett heard it 11 times in 51 cases. The time of its appearance and its location over the precordial area is variable, usually within the first to the third day and it may only be heard for a short period of time. Its location may be variable, heard in one position and on the next examination it may be audible over some adjacent area, but when once heard it is pathognomonic of coronary thrombosis.

Embolism is more frequent in the minds of most clinicians than pericarditis. In the cases where the infarcted area passes inward toward the endothelieal surface the exudative veil forms an ideal location for the formation of mural thrombi. If the process is very extensive actual bits of the heart muscle may fragmentate and float out into the circulation and lodge in important vessels. Embolus is a serious sequalæ of coronary thrombosis causing death in many patients who have survived the initial coronary occlusion.

Spontaneous rupture of the heart can occur whenever the pressure inside the heart is greater than the resisting force of the damaged heart muscle and is most likely to occur between the tenth and fourteenth day. Death is usually instantaneous when rupture occurs.

Electrocardiographic findings are usually present unless the involved area is small or in the so-called silent zones. A normal electrocardiogram in the period of life that this condition is so likely to occur would be as follows: A normal PR and RT interval; a more or less pronounced left axis deviation, that is the main spike in L3 and possibly L2 would be directed downward; no delay in the QRS complex and the T waves well formed and upright in the significant leads, that is L1 and L2.

The electrocardiographic findings in a patient who is suffering from coronary occlusion are frequently as follows:

1. Inversion of T waves in the various leads. It is of particular significance if

present in all the leads or L1 and L2. Of course prolonged use of digitalis or strophanthus must be ruled out.

2. High take off of the T wave that is instead of the normal RT interval occurring the T wave beginning off R above the isoelectric line.

3. The T wave may begin immediately after the completion of the QRS complex with an absence of the normal isoelectric RT interval.

4. Low voltage, that is a diminution in the amplitude of the QRS complex, may be present in all leads, although many badly damaged hearts have high complexes, and marked changes in the amplitude may be seen over a period of but a few days.

5. There may be a widening of the QRS complex with a splitting or notching of R.

6. A rapid succession of changes in the serial electrocardiographic tracings occurs.

7. It is possible for most any arrythmia to be present following occlusion.

Premature beats are common and may have their origin from any irritated focus. If the damage is caused by right coronary occlusion involving the supply of the pacemaker, auricular fibrillation may be the resultant alteration in rhythm. I might, at this point, interject that coronary occlusion rarely occurs in patients who previously have suffered from auricular fibrillation and it is also true that the prognosis is much better if an auricular fibrillation should develop after occlusion occurs, which one would naturally anticipate from the mechanical principles involved.

The above two, namely, premature beats and auricular fibrillation, are the common alternations, but branch blocks, main bundle block, paroxysmal tachyarardia and auricular flutter are frequently mentioned in the literature.

Treatment: The alleviation of the pain is the first consideration with its subsequent quieting of the patient, and morphine subcutaneously in large dosage is the narcotic of choice. An initial dose of ½ grain is given and repeated in several hours if necessary. Several grains in 24 hours can be administered as patients suffering from this condition can tolerate tremendous dosages of morphine. Always give it subcutaneously as it is of little or no value by mouth.

The shock is combatted in the usual way, namely, warm blankets and hot water bottles, to combat the circulatory collapse. The head is elevated as the accompanying dyspnea makes it mandatory.

In case the peripheral circulation is too markedly impaired, stimulation may be demanded. Adrenalin, digitalis or caffein sodium benzoate may be used for this purpose.

With the subsidence of the pain and recovery from the accompanying shock and prostration which usually occurs within 48 hours, a marked nausea frequently develops with associated painful eructations of gas. Hyman and Parsonett suggest an alcoholic sugar mxiture in combating this symptom as the ordinary measures are useless. An easily obtainable mixture is an equal amount of aromatic elixir and grain alcohol.

For the control of the dyspnea, Barach uses oxygen therapy either by tent or the intranasal catheter route. He reports prompt relief by this procedure.

Bed rest must be sufficiently long to allow the infarcted area to fibrose and heal as firmly as possible. I insist on a period of at least six weeks from the onset, certainly until the leukocytic count has returned to normal.

If during the convalescent period there are signs of circulatory failure such as pulmonary edema, passive congestion of the liver or edema of the extremities, prompt digitalization is demanded. Metaphyllin or phyllicin may be used with the idea of establishing a better coronary circulation. Levine suggests the use of quinidin in an effort to avoid ventricular fibrillation.

Diet during the initial stage usually presents no problem as food is consistently refused. When food is acceptable a liquid diet is initiated and followed with the average soft diet. Milk is excluded as it is usually followed by gastric discomfort. Unless the patient is a diabetic, a high carbohydrate diet

is usually indicated during the reparative process.

Case Reports: The first patient is a female, aged 53, married. P. M. H. Scarlet fever and chorea at age 8, tonsillitis and quinsy every year from age 14 to 25 when the tonsils were removed. Pelvic peritonitis followed four months later by a bilateral salpingo-ophorectomy at the age of 25. Eight years ago fracture of left femur. Two years ago frontal sinus infection with a recurrent attack one year ago. Hypertension present for the last twelve years, and a trace of albumin since then.

On the night of Feb. 8 about midnight she was struck suddenly with a pain beneath the sternum radiating to her neck and down the left arm. At first she felt it was due to gas and used the ordinary home remedies for relief. No relief was obtained after an enema and only momentary subsidence of the pain after eructations of gas. I was called around 2 A. M. and at that time her pain and discomfort were steadily increasing. Her blood pressure was 235/120. Dyspnea was slight, and the expression anxious but there was no evidence of any great amount of shock. She insisted on being well propped up in bed as it facilitated breathing. One-half grain of morphine was given hypodermically but this did not completely relieve the pain but she was able to rest fairly comfortably until 8 A. M. when I again saw her. Her blood pressure was 190/100, pulse 92, and she was complaining bitterly of the pain. One-half grain of morphine was given and repeated at 12 M. That evening, 18 hours after the onset of the attack, the pressure was 140/90. Fine creptant rales were heard in the base of the lungs. The pain gradually abated and was gone with the exception of heaviness over the precordia and numbness of left arm, in 72 hours. The latter did not completely disappear until ten days later.

The leukocytic count on the third day was W. B. C. 11,200 with 68% P. M. N. temperature appeared on Feb. 10, two days after the onset, ranging from 99 to 100 with a pulse ranging from 90 to 100. The temperature persisted until Feb. 24, 17 days after onset. With return of the temperature to normal the pulse dropped to 70 and stayed around that point. The basal rales persisted until Feb. 20 and the leukocytic count on Feb. 22 was 6,200.

After the second day she was troubled with marked nausea and gas. We felt a part was secondary to the morphine but with its withdrawal which we are able to do on the third day these symptoms still persisted. The nausea departed gradually and was gone by the tenth day. Gas was rather troublesome for two weeks.

At no time was I ever able to hear a pericardial friction rub.

The patient was kept in bed for six weeks, and then allowed up gradually. Her reactions to effort guided the amount of exercise she was allowed. Her blood pressure has never gone beyond 160 since the original fall.

Summarizing: The patient was in the fifth decade with a history of hypertension for the preceding 12 years. The occlusion occurred at midnight several hours after she had retired when the velocity of the blood stream had been reduced and the pressure at lower levels. The character and duration of the pain was quite typical and was followed by the usual temperature elevation and increase in the white count.

At the end of eighteen hours the systolic pressure had fallen from 235 to 140. The troublesome nausea which so frequently accompanied this condition was present.

The second case is that of a white male, age 65. Occupation, contractor. About the middle of December, 1932, he noticed that mild exertion, and particularly after coming out of his home into the cold air, caused a full feeling in the epigastric region soon followed by a pressure pain beneath the sternum. The pain was relieved by ceasing his exertion and after eructating gas. On the afternoon of December 24 an attack more prolonged, lasting about five minutes and more severe than the others occurred. After a rest he was able to return slowly to his home without discomfort. He laid down and slept for

approximately an hour and was awakened by a substernal discomfort, which gradually increased in intensity. I saw him at 5 P. M., an hour after the onset of the occlusion. His expression was that of intense agony; pale, drawn features with his forehead covered with a cold, clammy sweat. The pain as near as he could describe it was vise-like, starting on the left side of the precordium and extending across the sternum to the right shoulder. His blood pressure reading was 220-100, pulse 84, temperature 97 3/5. One-half grain of morphine was given hypodermically and repeated in two hours and again at 2 A. M. This amount of morphine only kept the pain bearable. Never at any time was he able to sleep or was he free from pain. His blood pressure at 2 A. M., ten hours after the onset of the attack was 160-90 and the following morning at 10 A. M. the systolic pressure had dropped to 120-80. It was necessary to continue morphine for two days to control the pain. Dyspnea at no time was marked.

On the third day there was audible a pericardial friction rub, in the fifth interspace two inches to the left of the sternum. It could be heard the following day in the same position but was not heard afterwards.

His temperature for twelve days hovered between 99 and 101, with the pulse rate between 84 and 96. The leukocytic count was 16,200, and did not return to normal until the 21st day, a week after his temperature returned to normal. Metaphyllin was given three times daily and he was kept in bed for a period of six weeks. After he was allowed up only the mildest kind of exertion could be indulged in or precordial distress was experienced. His systolic pressure has remained around 160, and for the last four years it normally ran over 200.

Briefly Summarizing: 1. For two weeks before the occlusion occurred there was evidence of coronary sclerosis with typical anginal attacks.

2. Presence of hypertension for at least four years from my own personal observation.

3. The accident occurred while he was asleep when the rate of the blood flow was decreased.

4. The typical anginal pain of sixty hours duration.

5. The marked drop in the systolic pressure from 220-120.

6. Presence on the third day of a pericardial friction rub.

7. Increase in the leukocytic count.

8. For two weeks an elevation of the temperature above normal limits.

Third Case: The last case I wish to present is a man age 70, whom I saw in consultation on February 27, with a history of his present illness as follows:

On February 23, four days ago while walking on the street he was seized with a sudden constricting pain through his chest and with it he was nauseated. After resting the pain abated and he walked to a physician's office, which was located nearby. After resting there for a half hour he was taken home in a car with a diagnosis of so-called acute indigestion, and it was attributed to his usual breakfast, which he had eaten about an hour previously. He felt quite well for the following three days when he was again seized with a constricting pain about the precordium which radiated down his left arm to the wrist. The pain persisted for four days gradually lessening in intensity. By the use of a moderate amount of morphine the attendant was able to keep him quite comfortable.

On examination his blood pressure was 160-90, 40 points below his usual systolic level. A leukocytic count of 9,600 was present with a temperature hovering between 99-99.6. An electrocardiographic tracing was done with the following abnormal findings present:

Low voltage or a low amplitude of the QRS complex in all leads. The isoelectric line in leads one and leads two came high off of R.

Inversion of T in all leads.

QRS complex was notched and split in all leads.

The QRS complex was .15 seconds in duration, a definite delay in its conduction time.

Occasional ectopic beats arising in the left ventricle were present.

His convalescence was proceeding quite normally until March 2, one week after the onset of the occlusion when he complained of a pain and numbness in his right foot. The following day the pain had extended to the knee with definite coldness and blueness of the extremity. There was a gradual development of gangrene of the first, second, and third toes and of the skin of the calf of the leg. A pulse was not palpable below the popliteal space. Amputation was done and there was found a thrombus in the popliteal artery at the site of an atheromatous constriction. The patient was unable to handle this added complication and died several days after operation. An autopsy was requested but was refused by the family.

I mention this case for several reasons. First: The danger of the diagnosis of acute indigestion, a term which I think should never be used. One should always be much more exact in designating the possible pathology.

Secondly: That the pain in the older individuals frequently is not nearly so intense due to the elaborate collateral coronary circulation which they develop.

Thirdly: His convalescence was proceeding quite normally until there was a blocking of the popliteal artery either due to a mural thrombus or to a thrombus forming at the site of an atheromatous constriction in the popliteal artery which was the factor that ultimately caused his death.

Finally coronary disease, either occlusion or angina, seemingly is on the increase due to the greater number of people reaching the anginal age or to an increase and intensification of the causative factors that produces arterio-sclerosis. The control of the etiologic factors producing arterio-sclerosis at the moment is beyond the horizon of preventive medicine. So it behooves us to guide and carefully direct those presenting signs or symptoms of coronary disease so that their lives may be comfortably extended. Instruct them in detail to avoid unusual physical exertion or prolonged mild exertion with loss of sleep and rest. Insist that they do not repeat that which previously caused anginal pain, whether it be physical exertion, emotional stress, or overeating. Always endeavoring to live within the limits of their coronary ability.

Be cautious in supplying your patient with glyceryl tri-nitrate, and in instructing him to dissolve one under his tongue to relieve pain before again resuming his activity. He will soon learn to appreciate their convenience, and fail to heed the serious danger signal of pain.

It may be necessary that he wholly rearrange his life and learn to practice moderation to a marked degree but therein lies his hope of extending his years of activity.

MENTAL ATTITUDE

Training for basketball requires that the mental attitude is specially trained as well as the muscles, Alfred E. Parker explains in his article on basketball training in the December *Hygeia*. The article is the twelfth chapter of his serial on "Training for Athletics and Health."

Arriving at this right mental attitude will require effort on the part of the player, and the time to start is before the season begins. One should try in daily life to acquire a serenity of mind and calmness in whatever tasks are done.

Just before the season opens, every boy should have a physical examination by a doctor to be sure he will not overtax his heart by the strenuousness of the game.

Actual development of the muscles used in basketball is not possible by setting-up exercises. The only way to condition the muscles for this game is by continual practice in dribbling, turning, pivoting, stopping and shooting.

The player should eat lightly on the day of a game and be careful not to drink too much water and not to eat fatty and highly seasoned foods. A detailed discussion of diet for the basketball player suggests menus for meals to be eaten a few hours before a game.

The author also discusses correct clothing. Special attention is given to the care of the feet.

FETAL BIRTH INJURIES WITH SPECIAL REFERENCE TO INTRACRANIAL LESIONS*

By P. BROOKE BLAND, M. D.
Philadelphia, Pa.

THE birth of a sound healthy baby is perhaps the most happy, as well as the most fortunate, event connected with motherhood.

On the other hand, the birth of a dead child is almost invariably looked upon as an obstetric tragedy, though probably still more tragic is the birth of a child either hopelessly crippled or grossly deformed.

In considering injuries of the new born in general, it may be said at the outset that damage, slight, moderate, or severe, may be sustained by any structure from the dermal covering—as for example the omnipresent caput succedaneum—to the mucous lining, including in the intervening area the muscles, blood vessels, nerves, bony architecture and the parenchymatous organs as well. It is thus observed that no tissue or structure is wholly immune.

The cutaneous envelope of the fetal body is exposed to abrasions, lacerations and necrosis, leaving at times telltale marks of an indelible nature. In certain instances skin damage is followed by bacterial invasion and occasionally this may culminate in death.

The bony framework, from the vertex of cranial cavity forming the upper pole of the fetal organism, as well as those structures forming the inferior pole, may be the site of the gravest form of damage.

The vital organs within the thoracic cage, or those within the abdominal cavity, may, likewise, sustain damage of a disabling or even fatal type.

Of the various forms of fetal birth trauma, both as regards the immediate and remote results, injury of the cerebrospinal system is probably the most frequent and in all respects by far the most serious.

Numerous investigators have demonstrated that pathologic conditions arising in the early days of neo-natal life are largely dominated by injuries sustained by the brain during delivery.

Fetal Mortality in America: In studying the statistics of fetal deaths in this country, it is exceedingly disquieting to learn that each year approximately 150,000 infants are born dead or die shortly after delivery. This means that 12,500 babies succumb every month, 2,885 every week, 410 daily, 17 every hour or approximately one every three minutes throughout the year. In the light of modern knowledge, it is not far off the mark to claim that one-third or more of these fatalities follow intracranial damage. It is altogether likely that many deaths, heretofore designated as stillbirths or those ascribed to that symptomatic state, asphyxia neonatorum, really had as their etiologic origin gross damage of the structures within the cranial cavity.

During a visit to Vienna, in 1907, I was deeply impressed by the meticulous study of all adult deaths in the morbid anatomy room, but despite numerous fetal bodies daily available, I never observed an autopsy upon a dead baby. This practice, I understand, is not followed today.

Literature: In recent years fetal birth trauma in general and trauma of the organs within the cranium particularly has been receiving some of the attention, long over-due, it actually deserves. Numerous articles have been published dealing with the trouble, and according to Ford, one of the first important contributions was made by Wehye, 45 years ago, who recorded the autopsy findings in 959 stillborn babies. In these intracranial hemorrhage was found in 122. Since the publication in 1888 of the observations of the author cited, an ever growing literature has developed, though it is interesting to note that this has largely appeared during very

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recent years. In a series of references recorded by Ford, totalling 136, all except 49 of the publications have been contributed since 1910, and it is further interesting to observe that more than 60 of these papers appeared between 1920 and 1927. In another series of 64 articles dealing with the subject, quoted by Doll, 48 were published since 1918.

While a few papers were contributed, one by Kennedy, in 1836, and another by Mauthner, in 1844, it was the article published by W. J. Little, of England, that directed special attention to the subject. This classical document was read at a meeting of the Obstetrical Society of London, on October the second, 1861, 72 years ago. It was entitled: "On The Influence of Abnormal Parturition, Difficult Labor, Premature Birth, and Asphyxia Neonatorum on The Mental and Physical Condition of the Child, Especially in Relation to Deformities." This is one of the most noteworthy contributions to scientific medicine of all time. It should be read and studied by every teacher, student and practitioner of medicine.

In his presentation, Little also referred to what he designated as his first paper, which was published 17 years before.

The essayist probably had in mind the series of lectures—18 in all—which he delivered on deformities of the human frame, at the Hospital for the Cure of Deformities, London, in the year 1844. In lectures 8 and 9, the latter especially, a rather detailed description of the character of spastic rigidity —now commonly called Little's disease—of muscles and deformities in infants, young children and adults is outlined.

The author attributed certain forms of spastic palsy and mental derangement to asphyxia. Apparently he did not appreciate the fact that asphyxia was a symptom rather than a cause of damage within the cranial cap. Little quite properly assumed that asphyxia was due to some interference with the placental circulation, and this he believed provoked the subdural and other types of hemorrhage. Although he does mention mechanical injury as a cause of spastic palsy, he evidently had no knowledge of, nor did he realize, the part played etiologically by primary obstetric damage within the fetal skull.

In his contribution he had shown that mechanical injuries of the head and neck following premature birth and difficult labor, in those instances where fetal life was preserved, though convulsions followed delivery, that the latter—convulsions—were apt to be succeeded by a determinate affection of the limbs of the child. This he designated spastic rigidity and ascribed as the cause "asphyxia neonatorum."

A feature of absorbing interest in connection with the study is found in his statement that medical writers of the period seemingly were unaware that abnormal parturition, ending in recovery of the child, at times terminated in diseases that manifested themselves in a remote stage of life.

In closing the discussion of his paper, he stated that he was not able to find any references to birth injuries with their sequelæ in the works of English medical writers. He, therefore, with confidence referred, he said, to Shakespeare. There he discovered the description of the physical deformity of King Richard the Third, and this fitted precisely an individual afflicted with one kind of deformity originating at birth.

It is, also, of some interest to mention in this connection that Sir Thomas Moore refers to the character of the birth of King Richard. His mother, the Duchess of Gloucester, Sir Thomas states, "had much ado in travail and that Richard was born with the feet forward," in other words as a breech delivery. It is pertinent to mention, also, that his birth was premature.

King Richard, in lamenting on his condition, is made in Act I by Shakespeare to say:

"But I that am not stamped for sportive tricks,
Nor made to court an amorous looking glass
I, that am curtailed of this fair proportion,
Cheated of feature by dissembling nature,
Deformed, unfinished, sent before my time
Into this breathing world scarce half made up,

And that so lamely and unfashionable
That dogs bark at me as I halt by them,
Why, I, in this weak time of piping peace,
Have no delight to pass away the time,
Unless to spy my shadow in the sun,
And descant on mine own deformity."

Frequency: In a study of the literature regarding the frequency of intracranial injury, one naturally finds, as always, some discrepancy in the data recorded. Autopsy studies, according to Ford, disclose that the incidence ranges from 20 to 65 per cent. In certain conditions, as, for example, premature and immature babies, a much higher percentage is found and it has been determined that a varying degree of intracranial bleeding is present in 90 per cent of the cases associated with the conditions named.

This confirms the general assumption that prematurity or immaturity is very intimately related to intracranial bleeding in an etiologic way. Breech presentations, as already indicated, are accompanied by a much higher percentage of gross trauma with hemorrhage inside the cranial cavity than are vertex presentations.

Apart from those cases of intracranial trauma of sufficient gravity to result in death, there are, besides, numerous instances in which injuries of a minor extent and unassociated with symptoms occur. Hemorrhage of varying degree is found in these cases. Indeed, it has been demonstrated by Sharp and others that routine spinal paracentesis of all new born babies will reveal the presence of certain quantities of blood in approximately ten per cent of the cases. Ford claims that a very large percentage of babies dying during delivery, or shortly thereafter, show frank evidence of intracranial hemorrhage at autopsy. This opinion is shared by nearly all modern observers. In only about one-third of the infants thus affected, however, is the bleeding of such proportions as to result in death.

Morbid Anatomy: Passing on to the question of the morbid findings in cases of intracranial trauma, two conspicuous lesions of varying intensity usually are found: First, laceration of the dura septa and, second, hemorrhage. In a certain number of instances, especially in the premature, bleeding is sometimes found without meningeal damage and conversely injury of extended proportions of the membranes with bleeding wholly absent may, also, occasionally be observed.

Holland, in analyzing 167 fresh fetuses, found the tentorium cerebelli lacerated in 81 or 48 per cent. Laceration of the falx cerebri was an accompaniment in 5 of these specimens, but in spite of the extensive trauma, bleeding was wholly absent in 6 of the bodies examined.

With reference to the site of injury, we learned from our investigations that this may occur in almost any section of the dura mater septa, though in most instances we, as have Holland and many others, found that the tentorium, just below its union with the falx, is most frequently damaged. Laceration may involve one or both sides of the tentorium and the tear may be incomplete or complete. In a certain number of instances, as has already been mentioned, injury of the falx is an accompaniment. The configuration of the lacerations is variable. Some appear as simple slits. Others are found elliptical in outline. Some appear as oval perforations and still others as irregular ragged rents.

Laceration of the septa is nearly always associated by an outpouring of blood and this may be mild, moderate or severe. While laceration without hemorrhage occasionally occurs, this is observed only in exceptional instances. In the majority of cases, vascular damage is an accompaniment of injury of the membranes and at times venous trunks of large dimensions are torn.

Capon, quoted by Ford, found in an autopsy study of 80 stillborn babies the source of the bleeding as follows:

First, the cerebral veins near their terminations in the superior longitudinal sinus.

Second, the internal cerebral veins, the choroidal veins particularly and almost exclusively in premature babies.

Third, the small nameless venis coursing through the fibers of the tentorium.

Fourth, the tributaries of and occasionally the chief trunk of the vein of Galen.

Fifth, the superior longitudinal, the transverse and the straight sinuses occasionally.

In the main, however, it is the veins of small dimensions that are involved.

Holland, from his observations, believes that the principal source of hemorrhage is from the tributaries which the vein of Galen receives from the cerebellum and midbrain and, also, from the cerebellar veins which enter the straight sinus.

The quantity of blood effused is variable. It may be mild, moderate or profuse. In cases of severe injury the brain at times becomes literally inundated with blood.

Injury of the vessels is brought about by intracranial stress and its mechanism, as described by Holland, is rather broadly accepted. Intracranial stress is defined as a compound compressive stress which roughly may be regarded as consisting of two elements: First, a general compression of the whole brain and, second, a simple longitudinal compression by opposite forces acting at the ends of the long diameter of engagement of the head in the pelvis. With these forces operative, there is brought about alteration in the contour of the fetal head, together with overstretching of the septa of the dura mater (Holland). For instance, in vertex cases and in the aftercoming head in breech presentations, the anteroposterior diameter of the head is decreased, while the vertical diameter is increased. This alteration results in overstretching with attenuation of the falx, particularly at its point of junction with the tentorium, and it is in this region that gross damage most frequently takes place. In face and brow presentations, there is a decrease of the vertical with an increase in the anteroposterior diameter of the head and this naturally brings about elongation and stretching in the lower free borders of the tentorium and falx. Hyper-attenuation in these circumstances must inevitably result in lacerations with fatal termination in a certain number of instances, and to a degree hitherto wholly unsuspected.

The consideration of the etiology of intracranial damage would be wholly incomplete without some reference to the factors chiefly concerned in a predisposing way.

These briefly may be summarized as follows:

First, in prolonged and difficult labor, as encountered in contracted pelves, with delivery occurring either spontaneously or otherwise.

Second, in technically difficult and imprudent forceps delivery.

Third, in complicated breech delivery and especially in hasty, unskilled extraction of the aftercoming head. This is regarded as accountable in a large number of instances of brain injury. (In the 168 fetuses examined by Holland, breech delivery was held as causative of intracranial hemorrhage in 47. In this series, laceration of the tentorium cerebelli was found in 37 cases, or in approximately 75 per cent.)

Fourth, in premature or immature infants, owing to the fragility of the vessels as well as certain other conditions not wholly understood. Prematurity, therefore, must be looked upon etiologically as one of the chief predisposing factors.

Fifth, in difficult delivery of the aftercoming head following version. This is operative in a large number of instances and hence, accounts for a certain number of cases in a predisposing way.

Sixth, in chemical changes in the blood itself, as well as in constitutional disease, as syphilis, for example, but these conditions by most observers are not credited with special etiologic importance.

As a matter of record and interest, the recital of some personal observations made in my own clinic as regards operative delivery might not be amiss at this time.

In 4,631 consecutive deliveries there occurred 49 fatal cases of intracranial hemorrhage, a fetal mortality from this source of about one per cent.

The character of labor in relation to the fetal mortality is portrayed in the following table:

Total Number With Character of Cases Delivered	Number of Cases of Intracranial Hemorrhage	Fetal Mortality
Spontaneous ...4020	14	.3 per cent
Forceps 382	13	3.4 " "
Breech 174	11	6.3 " "
Version 55	11	20 " "

Since the time allotted will not permit even a brief discussion of the symptomatology, diagnosis or the remote results of intracranial damage with hemorrhage, I shall devote the remainder of this presentation to a brief consideration of prevention and primary treatment.

Prevention: The prevention of intracranial injury may be summarized as follows:

1. Scrupulous antenatal supervision with the view of recognizing and eliminating complicating conditions that may lead to serious difficulty at the time of labor, recalling in this regard the age old axiom, "to be forewarned is to be forearmed."

2. The evasion whenever possible of all difficult manual and instrumental deliveries and the performance, in all threatening cases, of elective abdominal delivery instead.

3. The avoidance in all cases of hasty, antiquated manual means in the extraction of the aftercoming head in breech cases.

4. The routine employment of the Piper Forceps in the delivery of the aftercoming head in all difficult breech deliveries, and in the extraction of the aftercoming head following the operation of version.

5. The regular practice of spinal paracentesis in infants subjected to undue cranial stress in prolonged, difficult and complicated labor.

6. The repetition of spinal paracentesis once, twice or even thrice daily—by trained hands—in all infants showing free blood in the spinal fluid.

7. The intra-gluteal injection of human blood—10 to 20 cc—in all new born babies displaying symptoms and signs of intracranial trauma with hemorrhage.

Discussion

Dr. Fred E. Brammer, Dehue: I want to express my appreciation and thanks to Dr. Bland for his excellent presentation of this timely subject.

Like most of you, I have not had the opportunity of autopsy studies of fetal injuries as has Dr. Bland, but my observations, reading, and discussions with other physicians lead me to believe Dr. Bland's observations and conclusions are well founded. I shall not try to go very deeply into the scientific discussion of this subject, but rather to review the situation as it exists in West Virginia today and try to suggest a few ideas on what I think might be done to improve it.

First, I want to present a few figures from the State Department of Vital Statistics to show the conditions in our State as a further basis for my discussion. For the calendar year 1932 there were 38,803 births reported in West Virginia. Of this number 1,431 were reported as still births, and there were 1,088 deaths reported of babies from 1 to 7 days old. This means that 3.7% of all births were still births, and that an additional 2.8% died during the first week of life, or a total of about 6.5%.

No information of much value could be obtained as to the cause of the still births, as about two-thirds of them were reported "Cause Unknown." Among the causes given were anencephalus, asphyxiation, injury, premature, hard labor, smothered, syphilis, oversize, etc. Some of these causes are rather indefinite, and with the cause reported "unknown" in two-thirds of the cases no percentages can be worked out, but I can easily believe that fetal injuries, and especially intracranial lesions, may have had a considerable place in these unknown and indefinite causes.

As to the deaths during the first week of life, 13.3% were attributed to congenital malformations; 12% to birth injury; 3.7% to debility; 61% to premature birth; and 9.5% to other causes such as syphilis, lack of care, etc. Some of the injuries and the causes of injuries given were high forceps, cerebral hemorrhage, prolonged labor, difficult labor, hard labor, breech presentation, convulsions, and birth trauma. I can imagine that fetal injuries and intracranial lesions may have had a part in the cause of death in some of those reported "debility" and "premature birth" and that in those reported

"injury" that intracranial lesions may have been the chief injury.

I was curious to know how the statistics in a typical industrial county containing one of the largest cities of the state, compared with a typical mining county with no large city, and with a typical agricultural county with no large city. Taking Kanawha county as the industrial county with the city, Charleston, there were for 1932 4.7% still births, or about 1% higher than the average for the whole state, and 3.5% deaths during the first week of life, or nearly .7% higher than the average for the whole state. Taking Logan county as the mining county, there were for 1932, 2.7% still births, or about 1% lower than the average for the whole state, and 2.3% deaths during the first week of life, or about .5% lower than the average for the whole state. And taking Greenbrier county as the agricultural county, there were for 1932, 3.2% still births, or about .5% lower than the average for the whole state, and 2.9% deaths during the first week of life, or less than .1% higher than the average for the whole state. I am at a loss as to how to explain this higher percentage in Kanawha county unless it may be due to complicated cases coming into Charleston hospitals from other counties, and the still births and early deaths being reported in Kanawha county. I should like an explanation from our Charleston colleagues.

All of the statistics given above are mortality rates. It is impossible to determine and prove the morbidity rate from fetal injuries and intracranial lesions, but it is my opinion that many cases of idiocy, imbecility, and even epilepsy, may be due to this cause.

I presume that as long as there are births there will be some mortality and morbidity from fetal injuries and especially from intracranial lesions, but it seems to me that, with 6½% of babies in West Virginia being still born, or dying during the first week of life, there is a lot of room for us to improve in our prenatal, obstetrical, and even pediatric care.

What can we do here in West Virginia to improve this condition? First, I want to suggest that we try to make and report more accurate diagnoses as to the causes of deaths in these still births and early deaths. I know it will still be impossible to be sure of the cause of death in many cases without an autopsy. Therefore I strongly urge that we do more autopsies on these cases. I believe we can get a fair percentage of autopsies if we are not too indifferent ourselves and will take the time to do them.

Second, I want to suggest better prenatal care. We as physicians are largely to blame for the patients not having better pre-natal care. The public is becoming more enlightened in regard to pre-natal care both through those of our profession who take an interest in giving pre-natal care, and through social agencies. If we do not want the social agencies and public health units to step in and take our work away from us, it behooves us to get busy and do it ourselves. I let it be known that I consider myself under no obligation to respond to a call on an obstetrical case if the patient has not had pre-natal care. About 90% of my cases have some pre-natal care and more than 50% report fairly regularly for pre-natal care. I quote from two of my cases recently delivered. One said "I didn't realize the importance of pre-natal care with my first baby. No one explained it to me." The other, "No one ever told me it was advisable before. My doctor before did not say anything about it."

A doctor recently told me he had occasion to examine a patient from another locality to confirm diagnosis of pregnancy. After confirming the diagnosis he referred the patient back to her home doctor for pre-natal care. After a few days she returned and said "My doctor said that isn't necessary, but I believe it is necessary, or at least advisable. Won't you give me the pre-natal care?" How do doctors expect to get anywhere if they take that attitude? Granting that only a very small percentage of birth injuries might be anticipated and prevented or lessened by elective cesarian or by a more carefully planned delivery, it would be still worth while.

Third, I want to suggest better care during labor. I fear that the injudicious use of pituitrin is sometimes a cause of fetal injury and intracranial hemorrhage. Pituitrin is a wonderful drug when used properly, but when used to hurry and get through with a case with no regard to its other indications or results it is a very harmful drug. Let me give one illustration. A physician was called about 8:00 one morning to see a woman beginning labor. He made a vaginal examination and told her, "I'll give you a shot in the arm and you can have this baby in about one-half hour". The woman had a feeling—(woman's intuition?)—that she should not be rushed through in one-half hour so she dismissed the physician and called another. The second physician saw the woman about three hours after the first one had examined her, and the second physician found only about one-fourth to one-third dilatation of the os uteri even then.

The woman was going about her house and not really suffering. Analgesics were given pending dilation, and the second doctor returned to his office, after having left detailed instructions about being called when needed. He was recalled that night, and after a short uneventful second stage of labor, delivered the woman about 18 hours after the first doctor had advised the pituitrin to get through in one-half hour. Either that was an awfully ill-advised use of pituitrin or else I do not know my obstetrics.

In the best of hands and where most advisedly used there will sometimes be injuries from the use of forceps, but I believe there is much injury caused by ill advised and improper use, which injury can be largely prevented if we will make sure of our indications for the use of forceps and take greater pains in their use.

Fourth, I want to suggest better care of babies the first few weeks of life. I fear that most of us do not give the young babies as much attention as we should, and I am led to believe there are lots of cases where the doctor never examines the baby again after delivery. No doubt some of these babies that die during the first week or so could be saved by the proper treatment, but probably even more important would be the prevention of morbidity to the fullest extent possible in those that do not die, but have some injury and still live.

Fifth, I want to suggest that when we render better service in obstetrics, we place a proper value upon our services and educate the people to appreciate good service and to pay for it. No one else is going to see that the doctor gets his bread and butter unless he does it himself. True, we all realize that this depression is on now, and that we will have to do a lot of work for little or no pay, but the depression will not always be with us. When times do get good enough again that John Citizen can sign a contract to pay $40.00 a month on his new automobile, he should be educated to expect to pay more than $15.00 for his wife's confinement. I think that is the reason, or at least part of the reason, why the doctor, mentioned earlier in this paper, said that pre-natal care was not necessary. I was not informed who the home doctor was, but it is my impression that he was under contract with a company to do obstetrics in families of employees for $15.00 and was not allowed to charge any extra for pre-natal care. I do not much blame him for saying it was not necessary.

Finally, I want to suggest that we as general practitioners, as well as the pediatricians, begin now to give pre-natal care, as it were, to the infant females of the species, by taking an active part in child welfare, so that the oncoming generation will have properly developed pelves, so as to help prevent fetal injuries, especially intracranial lesions in the generations of the future.

Dr. James R. Bloss, Huntington: At the first meeting we had just about this same attendance. This is a very good batting average for an obstetrical paper. The statistics we prepared for the pediatric section were very illuminating to me. Everybody knows all about obstetrics and will not come to hear a paper on that subject, except just about this percentage of the attendance. With only 50 replies out of 1500 questionnaires, it is a very interesting lesson as to how few were interested enough in obstetrics in the state to send in the reply to those questionnaires. I went over the statistical material on premature births and stillbirths. Dr. Brammer presented the same statistics.

I am convinced that far more than a third of those babies could have been saved from birth traumas had the mothers had proper pre-natal care. A lot of those babies were picked green, as it were —immature. Many of them were immature even though the pregnancy had gone on for nine months, because of glandular disturbance and other causes. Those babies will have intracranial injuries.

The doctor spoke about pounding the heads around on the perineum. There is one thing I do not agree with him about; that is, doing the elective version, but you can learn how to get a perineum out of the way for normal cephalic delivery if you just watch how it is done. You will not have nearly so many lacerations.

As to the careless use of pituitrin, I know of no one drug in medicine that needs to be so carefully compounded with cerebral grey matter, on the part of the man who is using it, than pituitrin. Personally I am not afraid to use it. I do not give 1 cc. or ½ cc., like some physicians do. With me it is 1 minim or 2 minims—never an initial dose of more than 3 minims. There must be a definite indication even then. Properly used, I think pituitrin is safe, but it seems that physicians are not interested in trying to learn to do better obstetrics.

This paper is certainly an interesting one. The men in the state who are not here, but who should be, are the ones who are going to have babies with

intracranial hemorrhages and other things, and yet they wonder why they are having all of the trouble.

Dr. H. G. Steele, Bluefield: I want to thank Dr. Bland for his most excellent paper. Also I wish to make one point. In the near future I hope it will be possible for us to hold clinics and lectures throughout the state, as they do in Virginia. I believe it would help us all a great deal and would be a material aid in cutting down this high mortality.

Dr. W. E. Hoffman, Charleston: One of the chief causes of intra-cranial hemorrhage is not the *use* of forceps but the *improper* use of forceps. Another cause is leaving the head on the perineum too long. When the head rests on the perineum a hemorrhage results, with slumping and edema of the skull tissues. In prenatal work it is my practice, in the latter weeks of pregnancy, to make a rectal examination to find out where the baby's head is, and how it is likely to come out. I can then tell what kind of labor the mother is going to have and whether she will need a cesarian.

Dr. B. C. John, Morgantown: It is indeed a pleasure to be allowed the privilege of discussing the paper of a man so eminent in the profession as Dr. Bland. I have long been keenly interested in the subject of his paper.

Ideal obstetrics is obtained only when a child not congenitally deformed is born alive and absolutely uninjured. This ideal is far from being realized. We have just heard statistics given us by Dr. Bland in which he states that in this country alone one child dies every three minutes from injuries incident to its birth. Of this number one-third or more follow intracranial damage. We all believe our mortality rate to be low, but in the face of these figures it is hard to believe that they cannot be lowered. In fact, we are rather complacent in our views on the subject. It behooves all of us to prevent this mortality rate to the best of our ability, and I believe that this can be most easily done by closer supervision of our patients during pregnancy and by more careful attendance during labor.

The chief cause of fetal death is undoubtedly due to some interference with the oxygen supply, whether this be due to an interference with internal interchange of blood or whether it be due to compression of the respiratory center in the brain. Hemorrhage, whether it be punctate or large, can occur in any portion of the brain—subdural, subarachnoid, or intraventricular. This hemorrhage is caused, as Dr. Bland has so well informed us, from tearing of the falx cerebri, tearing of the tentorium cerebelli, from rupture of the meningeal vessels or from injury to the various sinuses, inclosed by the bony frame work of the skull. Any of these are bound to produce compression of the brain substance with the usual symptoms and signs of meningeal irritation. The terminal picture of the afflicted child is one to indulge our every sympathy. The child is dull, almost comatose, there is a high-pitched wailing cry, it refuses to take nourishment, there is a twitching of the group of muscles or of an entire side, respirations are rapid, the heart beat is rapid, the temperature may rise as high as 103 degrees, soon coma comes on and the child dies, the heart beat being the last to leave. This is indeed a distressing picture, and one which we feel rather helpless in treating. Dr. Bland has spoken of spinal punctures as a procedure of merit in the treatment of this condition. I believe it would be excellent for diagnostic purposes, but I have received no good result in my limited number of cases treated in this way.

I am inclined to believe that protracted difficult labor incident to contracted pelves is more responsible for this condition than instrumentation. Beach, in 810 cases of idiocy, found a history of difficult labor with spontaneous delivery in 26 per cent, and in only four per cent was there a history of hard forceps delivery. Many of us, I feel sure, have labored under the delusion that forceps delivery was far more dangerous to the child than spontaneous delivery, yet these statistics would tend to prove otherwise.

Following many cases of concussion of the brain in the adult, we know that there is weakness of memory, lack of concentration, mental aberration and ease of fatigue, resulting. Is it not therefore true that brain injury to a small infant may have some bearing on its mental capacity before it reaches adult life. There must be some scarring in each case of brain injury. Little's spastic paralysis, epilepsy and idiocy often follow difficult labor, whether it be spontaneous or whether it be operative. The prevention of these conditions can be most easily obtained by a more masterful practice of our art, and yet before passing judgment one must consider the nervous and mental strain under which the accoucheur is called upon to perform his work, the mental fatigue incident to the care of a long protracted labor, and the low bed and inexperienced

attendance with which he must work when attending a home delivery. And last but not least it is always a source of comfort to know that these accidents have occurred in the hands of some of the finest obstetricians the world has ever known.

I have enjoyed Dr. Bland's paper immensely and hope at some future time to again have the pleasure of listening to him.

Dr. Russell C. Bond, Wheeling: Dr. Bland's discussion of the causes of intracranial hemorrhages in the new born was unusually interesting and quite enlightening. Intracranial hemorrhages are not infrequent, and I might say, are more common than one would think. The typical case of hemorrhage presents these symptoms: cyanosis, irregular respirations, twitching of extremities or face muscles, generalized convulsions, nystagmus, and bulging fontanelles. An infant presenting these symptoms, is a clear cut case of intracranial hemorrhage and the diagnosis is readily confirmed by the finding of gross fresh blood in the spinal fluid. This represents a case with a grave prognosis. Now all hemorrhage cases are not severe and may present only an occasional twitching of the face or extremity, occasional periods of apnoea with cyanosis and a bulging fontanelle. Even milder yet, we may have a mild case, presenting drowsiness, failure to nurse and a bulging fontanelle. These milder cases are not always diagnosed as hemorrhages but as "asphyxia neonatorum", which is not a diagnosis, but only one symptom of hemorrhage. Too often, one does not think to feel the fontanelle of an infant, and does not recognize the tension of it. I usually compare the tension with a normal infant, if it is a hospital case. Internes should palpate the fontanelle of every new born infant on his rounds. In this way he soon learns to recognize a fontanelle that is under increased tension or is actually bulging. As to treatment, I do not favor "hands-off" attitude, that is in an infant who has a hemorrhage to let it alone. Treatment should be begun as soon as the diagnosis is made. Repeated lumbar or cistern punctures, intramuscular whole blood, elevation of the head, and the use of CO2—02 mixture during the periods of cyanosis, are the proceedures to carry out. The lumbar and cistern punctures as necessary to keep down the intracranial pressure. Palpation of the anterior fontanelle is the guide for pressure. In doing lumbar or cistern punctures, I use a 16 or 18 gauge one and ½ inch needle. These needles are smaller and more easily used than an adult needle.

As to the prognosis in these cases, one cannot always state. In the very severe type, it is grave. In mild cases, the progress is good. I have four children under my care, all now between 4 and 5 years old, whom I treated at birth for severe intracranial hemorrhage. All four presented the gravest symptoms and all were treated with the proceedures given before. Today they are normal children in every way as far as I can detect, without any residual paralysis or other signs.

One should consider an intracranial hemorrhage as an acute emergency, both in mild and severe cases. After diagnosis and persistent treatment, many of these cases can be saved, and the parents are still the proud possessors of a new son or daughter.

Dr Bland, (closing the discussion): I was very much interested in the statistics presented by Dr. Brammer. His figures confirm everything I have said regarding intracranial hemorrhage.

Pituitrin has three very definite major indications and one minor indication. The major indications are (1st) medical induction of labor in accordance with methods which we are all familiar with; (2nd) the curtailment of hemorrhage on conclusion of the second stage. It is my custom to immediately administer pituitrin after the birth of the baby. We give 5 minims of pituitrin and thereby prevent excessive loss of blood; (3rd) always use pituitrin with the conclusion of the third stage to bring about proper uterine activity. The minor indication, which was mentioned by Dr. Bloss, is the use of pituitrin to stimulate uterine contraction. If the drug is administered judiciously, I agree with him. I only use it when the membranes are ruptured, and the head or pelvic floor, but not otherwise. I seldom, if ever, use pituitrin in a primigravida unless the head is low down and then I give two or three minims only.

Forceps delivery is always dangerous, both for the mother and the baby. It matters not what type of operation is done, whether high, medium or low, forceps delivery operations always carry a very definite mortality for both mother and child. It is an operation one should never resort to indiscriminately.

INFLUENZA*

By D. N. BARBER, M. D.
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IN thinking over my experiences in general practice this past year, influenza seems to stand out as worthy of review and comment. It has been my steadiest source of income and most difficult common malady to treat due to its confusion with common colds in the early stages. It is a disease nearly every doctor encounters, is often the cause of serious complications and disabilities and deserves the serious consideration of doctor and patient.

Influenza is an infectious, contagious disease characterized by acute inflammation of the upper respiratory tract and bronchi, a sharp constitutional reaction, marked prostration and more or less frequent secondary involvement of the lungs, digestive tract or nervous system. Cases of only the mildest onset and shortest duration may be the cause of prolonged ill health.

Young adults seem more susceptible although no age is exempt from infection. The Pfeiffer bacillus is frequently found in culture but its occasional absence and the marked prostration so commonly seen suggest a filterable virus as the probable cause. Very little immunity is developed and none can be induced, though the periodicity of major epidemics suggest each generation develops some defense.

The incubation period is from a few hours to four days. The onset is sudden, but of variable intensity. Usually the first symptom is a headache. Fever and chills with malaise and anorexia are always early. Pain in the back and limbs, weakness and a dry cough are usually found. The frequency of nausea and even persistent vomiting was striking in this last epidemic. This was so severe as to handicap seriously oral treatment and was instrumental in my adoption of hypodermic therapy in many cases. Of some value in the differential diagnosis of influenza and common respiratory infections is the marked inflammation of the throat—cherry red, often extending over the palate and especially marked on the anterior pharyngeal pillars with almost an absolute absence of throat complaint. Glands are neither markedly enlarged nor tender. The pulse has a tendency to remain proportionately slow to the fever, which tends to be irregular and fairly low after the onset. Sweating is frequent, often drenching, and certainly beneficial if the case is bed fast. Chest signs are usually absent in the early course of the disease. The heart action is often weak and not infrequently murmurs are heard during the febrile stage only. Acidosis is an early complication in children and infants and quite apparent in many adults. Epistaxis, in my experience, points to a severe attack. Such blood pressure readings as I have taken have been lower than normal in most cases. Blood examinations show a definite leukopenia of 5000 to 8000 with a preponderance of lymphocytes. Urine analysis almost always reveals a trace of albumen and especially in children may progress to a typical acute nephritis.

The most impressive findings are prostration and weakness entirely out of proportion to the clinical evidence of infection. The onset is nearly always abrupt, sending the patient home and to bed in the middle of the day. In those cases so mild as to be unrecognized by the patient until complications develop, there is a consistent history of loss of pep and mental depression, unexplained except as evidence of influenza. During the last two months nearly all new cases were first seen at the stage of complications.

The mortality of influenza outside of such epidemics as occurred in 1918 is almost entirely due to its sequelæ and complications. The disease consists of an often violent toxemia that opens the door to the invasion of

*Read before the Logan County Medical Society, March 15, 1933.

the many germs usually present in the upper respiratory passages. Those most frequently encountered or expected are: acute sinusitis, otitis media, broncho-pneumonia, bronchiectasis, pulmonary tuberculosis, lung abscess, enteritis, meningitis, myocarditis, acute nephritis and encephalitis.

Influenza is thus the forerunner of many serious diseases; the cause of much financial loss through disability; is a prevalent disease nearly every year; has no specific immunity; is often difficult of diagnosis and is frequently belittled by those afflicted as they are largely the active, healthy members of the community and not habituated to illness. Further its treatment at the hands of the medical profession is so varied as to be confusing to doctors and patients alike. Since we have little authority for our remedies beyond our own clinical experience, it seems desirable to compare notes that we may benefit from one another's experience. The following treatment outline is offered only in the hopes of constructive criticism.

The most important item of treatment is confinement to bed until well after the febrile period. In the very mild cases about three days—in most cases one or more weeks. A liberal amount of fresh air is necessary with care to prevent chilling, however. Fluids should be forced to the extent of at least eight ounces every hour the patient is awake. Well tolerated fluids are water, orange juice, lemonade, grape juice and ginger ale. A high intake is best accomplished by frequent small drinks, a system absolutely necessary in the presence of marked nausea. Citrocarbonate or other alkalies are well tolerated and specially beneficial to children. Laxatives are given to the point of one action a day, laxatives of choice being milk of magnesia or citrate of magnesia. A soda enema once or twice a day seems to reduce the frequency of chest infections in children. Diet should be as liberal as the patient's stomach can handle—consisting of milk, eggs, custard, gelatin, toast, cereals, broth, etc. A full night's sleep can be insured with luminal or bromides if actual pain is relieved by codeine. To reduce fever, promote comfort and induce diaphoresis, I frequently use a capsule containing 3 to 5 grains of pyramidon or amidopyrine, 2 to 3 grains of phenacetin and ¼ to ½ grain of codeine. If pain is not a factor and prostration severe the codeine is replaced by 1 to 3 grains of caffeine citrate. Coughing is frequent, dry and exhausting; it is usually controllable by rather large doses of the elixir of terpin hydrate and codeine which seems to be retained better than syrups. Oil-ephedrine sprays or adrephine nose drops contribute to the patient's comfort by permitting easy nasal breathing and reducing the likelihood of sinus and ear complications. In cases with a very weak or fast heart, digitalis by mouth or hypodermically is indicated.

This treatment is so far from universally successful that I have had to keep something to fall back on in those stubborn cases that linger for a week or more with no appreciable improvement. Omnadin (Metz) a non-specific protein for hypodermic use has seemed to turn the tide favorably in most cases. I have given it to infants and to critically ill adults with no reaction other than improvement. It seems shock free, can be repeated daily with the utmost safety and actually seems to build some resistance in the washed-out cases that are stationary or failing. I am sure it is just as good for other types of infections and would probably be better given early in the disease, but to me it has become a sort of last resort and I cherish it as such.

DIARY OF SAMUEL PEPYS

Appropriately, because this is the three hundredth anniversary of his birth, Samuel Pepys' diary is the subject of an article, "Medical Notes from the Diary of Samuel Pepys," in the December *Hygeia*.

Lois Stice, the author of the article, recounts Pepys' stories of the stirring times in which he lived; particularly complete is the picture of the great bubonic plague in London in 1665.

Throughout the diary, for it throws much light on health conditions of the period, one is reminded of the vast changes wrought by medical science since the seventeenth century.

IMMUNIZATIONS AND VACCINES*

By R. C. FARRIER, M. D.
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An active immunity to typhoid fever may be artificially induced by injecting killed typhoid bacilli into the subcutaneous tissues. This so-called "vaccination" against typhoid fever is now a procedure of established worth —rational, harmless and effective.

Its use began in 1896 with Pfeiffer and Kolle and Wright independently. Wright then introduced the method in the English army and the results led to its adoption in other countries. Vaccination against typhoid fever was started in the American army in 1899 under the supervision of Russell.

During the World War the army used a single dose of a suspension in cotton-seed oil. The oil prevents the rapid absorption and to some degree interferes with the immunity response. The French are trying the effects of giving the vaccine by the mouth.

The immunity produced varies both in degree and in duration. The protection conferred is only relative, and with an undue amount of exposure infection may result. The duration of the immunity is at least one year, but it may last three or four years, the average being about two and a half years.

The results of typhoid inoculations can no longer be questioned. The most striking effects have been the reduction of the death rate in those persons who have been properly vaccinated against the disease. The best results have been obtained in the armies of Europe and the United States. The French army was only about one-third vaccinated when the World War broke out. In consequence typhoid and para-typhoid fevers were abundant to such an extent that hundreds of cases developed daily. Within a year all were inoculated with the typhoid vaccine and the cases of fever diminished 90 per cent. Within the next year all had received paratyphoid A and B inoculations and the fevers diminished to 1 percent of the original prevalence. In the American army, cases of typhoid fever were very few during the first year, but fairly frequent in the last half year of the war. Thus, in July, 1918, a replacement unit consisting of 248 men going from Texas to England developed a number of cases, so that in all 39 percent were attacked with a mortality of 8.4 percent. These men drank badly contaminated water. During the Chateau-Thierry offensive diarrheal diseases were very prevalent, approximately 75 percent being attacked. The prevailing diseases were simple diarrhea, bacillary dysentery, typhoid fever and the A and B types of paratyphoid fever. These conditions were met with at other portions of the front. It is evident that typhoid vaccine, although it gives a marked degree of immunity, cannot be wholly depended on when great exposure to infection is combined with great bodily strain. The inoculation being accompanied by practically no danger, the method is especially applicable to those unduly exposed to infection from typhoid fever, such as nurses, hospital attendants, physicians, travelers, soldiers in camps, persons in epidemic localities, and persons in the family of a bacillus carrier.

Various state health departments are recommending three doses of typhoid vaccine, and then taking one cc. each year which renders the individual comparatively safe.

Relative Value of Toxin-Antitoxin and Toxoid: In dealing with a series of vaccines I think it inopportune at this time to go into the method of manufacture of toxin-antitoxin, and toxoid, but to discuss the relative value of both in producing immunity to diphtheria. Both have advantages. One advantage of toxin-antitoxin is that it acts both as a substitute for the Schick test and as an immunizing agent against diphtheria. The percentage

*Read before the Monongalia County Medical Society, February 2, 1932.

of immunity from toxoid is relatively higher than toxin-antitoxin. It has been found that toxin-antitoxin renders from seventy to eighty percent of individuals Schick negative as against ninety percent toxoid. The advantage of toxin-antitoxin is that in the school child your reactions are practically nil, which also holds good for the pre-school child. The reactions from toxoid in children of school age are in some instances rather severe. It seems to be the concensus of opinion of authorities to give toxoid to the pre-school children and toxin-antitoxin to the school children and others.

Immunization Against Scarlet Fever: The justification for the use of scarlet fever streptococcus toxin for the production of active immunization is founded on data presented by various independent workers.

Dick and Dick (1929) report no cases of scarlet fever among 1,191 susceptible nurses and internes who were immunized before they began work in hospitals for contagious diseases. As a control they report 37 cases of scarlet fever occurring among an unstated number of nurses and internes who entered before they had been tested for susceptibility, or who were known to have positive skin reactions and had not been immunized.

Toyoda (1930), writing from Dairen, Manchuria, reports an attack rate of 23.8 per 1,000 among the untested Japanese elementary school population; 1.3 per 1,000 among those with negative Dick reactions; 106.4 per 1,000 among those with positive Dick reactions but not treated, and only 2.6 per 1,000 among those with positive Dick reactions but who had been actively immunized with scarlet fever streptococcus toxin.

The injection of such toxin, however, is not without unpleasant reactions, which, while not in themselves dangerous to life, are of sufficient moment to make the clinician reluctant to use the toxin and more often to cause the parents to refuse further treatment. The need for five immunizing doses makes its use expensive, whether administered by the private physician or en masse as a public health measure. In order to receive general favor, preventive measures of this nature must be relatively free from discomfort, require a minimum of injections, and be inexpensive. There is, therefore, a real need for a non-toxic, highly antigenic scarlet fever streptococcus product which will be no less effective against scarlet fever than the present raw toxin, yet be more like diphtheria toxin-antitoxin in its freedom from reactions and in the number of doses required.

Cold Vaccine: In reviewing the literature on vaccination against colds I find that writers, as a rule, speak very highly of the product and do not pass it off with the assertion as we have become accustomed to doing, that it is about 50% effective. There is still a good deal to be learned about the etiology of the common cold, but micrococcus catarrhalis, streptococcus, staphylococcus, and pneumococcus no doubt play a part in the causation of the disease. The failure of the vaccine, in some instances, is due to the fact that the patient has adenoids, polypi, focal infections, or anatomical defects, and that differentiation from other diseases, as influenza, etc., is not clearly made, and also keeping in mind the fact that all inflammation of the nasal passages are not a common cold. Authorities seem to agree on the fact that the autogenous vaccine is the one of choice, and should be made in the purulent stage of the disease. Some authorities seem to obtain better results by mixing the stock vaccine with the autogenous, and to secure the best results it should be given in the early stages of the disease. It doesn't seem practical to make an autogenous vaccine late in the disease and then give it early, but this autogenous vaccine could be made from one attack and kept in readiness for the subsequent attack, or given at intervals between attacks.

Whooping-cough Vaccine: As whooping-cough causes many more deaths than diphtheria, measles or scarlet fever, it is important to know whether prophylactic injections of vaccine do or do not prevent the disease.

Sauer and Hambrecht, in their excellent study of the problem, stated that as a prophy-

lactic measure vaccines are lauded more by the practicing physicians than by the pediatricians in medical schools or physicians in charge of institutions in which young children are housed. Smith reviewed the literature appearing on this subject from 1919 to 1924. He stated: "The concensus of opinion would seem to suggest that the prophylactic use of vaccine may be expected to yield very satisfactory results, when used in sufficient dosage." (Quoting from Schowalter, R. P.: The Value of Vaccine in the Prevention of Whooping Cough, American Journal of Diseases of Children, 39:544-548 March, 1930).

Quite a few authorities agree that if given in large doses the vaccine given as a therapeutic measure will lessen the number paroxysms and shortens the course of the disease. In my own clinical experience, if given in time it will prevent the disease in a vast number of instances. I usually give one cc. of stock vaccine at three to four days' interval and give four doses. During the time prior to my Public Health Service in the State of Louisiana whooping-cough vaccine was furnished by the State Board of Health, and I had occasion to give it to some several thousand children. I found that it was very effective in preventing the disease, or if given too late would make it milder. The only experience I ever had with it in West Virginia was some few months ago at the County Detention Home. We had six cases of whooping-cough to develop in a population of about fifty. We gave the vaccine to all the inmates of the home including the children with whooping-cough. Mother Harris, the superintendent, was very much elated with the results. She said the paroxysms with the six that had the disease were markedly decreased, and we had only one case to develop in the home after the onset. I checked up on it the best I could to ascertain how many had had whooping-cough before. I couldn't get any definite data, but there were possibly some eight or ten who may have had the disease.

(Data for this paper was obtained from Park's Public Health and Hygiene, Consulting Bureau, Hagerstown, Maryland, and the U. S. Public Health Service.)

OSTEOPOROSIS FOLLOWING TRAUMA

By J. M. MOORE, M. D.
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TRAUMA to bones and articulations at times yields results far graver than the actual injury warrants. Such occurrences, four times in the past four months of the writer's practice, justify the report of those four cases.

Definition: Traumatic osteoporosis is that form of bone absorption which follows trauma and is associated with pain and vasomotor disturbances.

Clinical Course: Typical cases have the following course: After proper reduction of a wrist or ankle fracture and application of a suitable bandage or splint, the patient returns at the end of two to three weeks. He complains of excessive pain and inability to use the extremity. On removal of the bandage the surgeon is dismayed to find the extremity swollen, discolored, and rigid. Further immobilization increases the pain and all types of physio-therapy give no relief. In spite of all efforts the loss of function continues to increase as the months pass.

Site and Frequency: This type of osteoporosis occurs most frequently in the tarsal and carpal bones; next in the heads of the metacarpals, metatarsals, and phalanges; still less in the shafts of the latter; and least in the heads of the long bones. The skull is rarely involved and the diaphyses of the long bones practically never are attacked. Age and sex show no restrictions to this condition. No reliable statistics are available as to the relative frequency of osteoporosis following trauma.

Pathogenesis and Pathology: "To investigate these cases etiologically it is not the bone tissue itself that requires to be studied; it is the blood vessels supplying the bone, the autonomic nerves controlling these vessels, centres in the central nervous system supplying these nerves, and endocrine or other factors which may inhibit or stimulate these centres . . . . Sometimes after subcutaneous laceration, a contusion, or a sprain but without an external wound, immediate radiography shows that no fracture, no displacement of bone has occurred . . . . Some weeks or even many months later, ... radiography demonstrates a decalcification which, though limited, may be extreme. The radiogram at this stage strongly suggests a tuberculous osteo-arthritis which the clinical history negatives. This condition is spoken of as a traumatic axon reflex and there has been brought about, through the action of histamine on the vascular autonomic nerves, a prolonged, though localized, dilatation of the arteries and capillaries and so a hyperemia sufficient to ensure decalification of the bones."[1] In other words, following trauma to extremities, from lacerated tissues histamine is liberated in sufficient quantities to paralyze the peripheral sympathetic vasoconstrictor fibres and ganglia. It must be borne in mind that acetylcholine, the transmitter of parasympathetic and sensory collateral vasodilator effects, is also liberated from lacerated tissues; furthermore rupture of sympathetic fibres by the trauma may elicit a vicious cycle of hyperemia.

Fig. 1—Left, multiple fractures of the toes.

Fig. 1—Right, three montns later, non-union with osteoporosis, tarsus and distal bones.

The old concept of bone as a rigid, inert support is no longer tenable—our bony frameworks are as sensitive to alterations in blood supply as a clinical thermometer is to temperature changes. Maintenance of the blood supply within certain limits results in normal bone, increase its blood supply and it undergoes decalcification or osteoporosis, decrease its blood supply and consolidation or

Fig. 2—Left, fracture of scaphoid, internal cuneiform, and three metatarsals.

osteosclerosis ensues, remove its blood supply and necrosis is inevitable. Thus it may be stated that, should trauma bring about a dysharmony in the nerve-vascular supply of an extremity, undesired results will ensue in the bones of the involved extremity.

On pathological examination porotic bones grossly exhibit a very thin, brittle cortex and medulla that is completely replaced by adipose tissue.[2] The mineral content is relatively the same as that of normal bone, consequently the condition is more that of uniform

Fig. 2—Right, three months later, non-union with osteoporosis of tarsus and distal bones.

bone absorption rather than that of decalcification. Microscopically there is a disappearance of all the transverse striæ with diminution of the longitudinal lamellæ. The Haversian canals are enlarged while the cortex is narrowed. The paucity of osteoclasts present points to a process of osteolysis rather than osteoclasis.

Röentgenography: In carpal lesions, for example, the first appearance of this condition is that of a general mottled condition of the carpal bones. Later on a diffuse and

marked decalcification of them occurs with a beginning decalcification of the epiphyseal ends of the metacarpals, phalanges, and distal head of the radius. There may be a thinning of the cortex of the metacarpals and phalanges with appearance of longitudinal streaks in the thinned cortex. The interphalangeal joints appear hazy or even merged. After the height of this stage a slow recalcification ensues but usually is incomplete.

Diagnosis: Occurrence of a fracture is not essential for the diagnosis of traumatic osteoporosis. The diagnosis may usually be made on any case which, two or more weeks following trauma, presents loss of function of the involved extremity, vasomotor disturbances of the same, pain unrelieved by immobilization, and a characteristic röentgenogram. The patient complains of pain on active or passive motion of the extremity yet he characteristically resents immobilization. The extremity feels warm to touch yet paradoxically the patient interprets his hyperemia as a cold sensation. There may be atrophy out of keeping with disuse atrophy for so short a period, cyanosis increased on dependency, a glassy, glazed, swollen skin, and other trophic disturbances. On oscillometry the usual finding is that of increased oscillations on the impaired side.

Differential Diagnosis: Formerly these cases were confused with atrophy of disuse. Furthermore, few röentgenologists strive to differentiate the two conditions. The diagnostic points are pain, vasomotor signs, and repeated röentgen examinations.

Tuberculous osteoarthritis is late considered but may be ruled out by the lack of a specific focus and the failure of immobilization to secure relief. Other lesions to be considered are: nerve lesions especially causalgia which etiologically resembles osteoporosis, vascular lesions such as thrombosis and embolism, myositis, tenosynovitis, and infections.

Treatment: Any rational treatment should endeavor to secure restriction of arterial blood supply. Theoretically intermittent or continuous passive congestion are indicated but are ineffective in practice. Surgically periarterial sympathectomy and ramisection are warmly recommended by Fontaine and Herrman.[3] The performance of such operations to decrease hyperemia seems paradoxical; favorable results must be attributed to surgical interruption of the continued irritation of vasodilator nerves. The writer cannot indorse sympathectomy because of its transitory effect and unsound physiological basis. A search of the available literature does not reveal sufficient cases of ramisection for osteoporosis to draw any conclusions as to its value. Numbers of writers, such as Speed[4] and Buchman,[5] have shown the merit of excision of a single bone when only one carpal or tarsal bone is involved. Where the osteoporosis is generalized, the sole therapeusis is apparently ramisection and then such a procedure so far is purely experimental.

Prognosis: After the disease reaches its climax of decalcification, spontaneously recalcification begins. Until this occurs, and the process may take years, the patient suffers great pain as well as loss of function of the extremity. Usually the circulation of the extremity adjusts itself. Unfortunately, in most cases, during the acute stage of rarefaction some of the tarsal or carpal bones collapse or there may be an extensive fusion of the inter-tarsal or inter-carpal joints. There also may ensue a generalized fibrosis and contracture of the synovial membranes and other soft tissues. All of these changes are permanent and crippling. Therefore, unless ramisection proves to be the salvation for this condition, the prognosis for generalized osteoporosis is so far extremely poor.

Case Reports

Case 1: Mrs. W. J., of Richwood, was seen on December 3, 1932. Six weeks previously she had sustained a Colles' fracture which was reduced and immobilized in plaster for several weeks and then in a Walker splint until seen by the writer. She complained of swelling of the wrist and fingers, great pain even when at rest, loss of motion of the wrist and fingers, and coldness of the extremity.

Röentgenograms of the wrist showed firm union but backward displacement of the lower

frgament with thirty degrees upward tilt of the radial facet. There was a diffuse mottling of the carpal bones with localized decalcification of the cancellous extremities of the metacarpals and phalanges.

Fig. 3—Left, contusion of ankle.

As the tarsal joints were still clear it was felt that the malunion should first be corrected before attention could be given to her osteoporosis. She was consequently advised to submit to an osteotomy of the radius but operation was refused. A communication of March 24 states that the condition has not materially improved.

Case 2: Mr. F. R. W., of Prenter, was first seen on November 9, 1932. He had sustained a crushing injury to the left foot with multiple fractures of the toes on August 27 of the same year. Past treatment had consisted in the application of plaster bandages with weight bearing. Throughout the treatment he had complained of pain in the extremity, even when at rest. Under the writer's care he was hospitalized for several weeks of physiotherapy but no improvement in his condition was attained.

Röentgenography (Fig. 1) revealed a striking decalcification of the cuneiforms and the forefoot, only the diaphyses of the metatarsals and proximal phalanges escaping the

Fig. 3—Right, four months later, decalcification of tarsus, chiefly of interlamellar bone. Original films show detail much better.

process. The distal inter-tarsal joints were hazy and there was no callus in the vicinity of the fractured phalanges.

The patient reported for reexamination on March 27. He walked with a marked limp, the inter-tarsal and distal joints being held

rigidly. Passively it is possible to demonstrate a very limited amount of motion in these joints. The fractures of the phalanges had united. The dorsalis pedis and posterior tibial pulsations were palpable and there were no color changes on dependency or elevation. The foot presented a moderate amount of swelling of the non-pitting type; the skin was thin and glazed.

As the patient presented numerous malingering signs bearing no relation to his actual disability, the writer recommended that no further treatment be attempted. He will recover some years later but will, of course, be a permanent cripple as far as the loss of intertarsal and phalangeal motion is concerned.

Case 3: Mr. S. M., of Rensford. This patient was first seen on December 2, 1932. On the same day his right foot had been crushed between two railroad bumpers with resulting fractures of the scaphoid, internal cuneiform, and three metatarsal bones and laceration of several toes. The lacerations were sutured at once and a temporary splint applied. One week later a closed reduction was attempted with application of a plaster bandage. The latter was changed at the end of one month and hospitalization for physiotherapy treatment at the end of three months was begun. Throughout this course of treatment, this patient complained bitterly of pain in the foot.

On January 23, 1933, röentgenograms (Fig. 2) presented a picture very much like that of Figure 1. There was likewise a nonunion of the fractures.

He was reexamined on March 24, of this year. The foot resembled in all respects the foot of Case 2, except that it was not possible to demonstrate tarsal motion passively.

Ramisection or sympathectomy as an experimental procedure was proposed to the patient but the latter declined any type of surgery not actually performed on the foot itself. He will also sustain a permanent loss of motion of the tarsus.

Case 4: Mr. J. L. W., of Birchton, sustained a crushing injury of the right foot on November 18, 1932. When first seen, two days later, he presented great swelling and hematoma formation over the lateral and medial aspects of the ankle with restriction in motion in all directions. A röentgenogram was negative for bone or joint pathology. A diagnosis of contusion of the ankle was therefore made and a Gibney ankle strapping applied.

He returned on January 6, stating that he had never fully recovered from his injury. He was referred to the State Compensation Department but, in answer to a follow-up letter, returned for reexamination on March 20. At this time there was a moderate degree of restriction in tarsal motion. The foot was somewhat discolored on dependency and the skin was also glazed and shiny. A röentgenogram (Fig. 3) of the tarsal bones revealed a marked decalcification with diminution of the inter-lamellar substance but there were no areas of mottled bone absorption. The tarsal joints were clear.

It was felt that recovery without disability might be expected in this case. The patient was therefore advised to seek no special treatment and, when his pain had somewhat decreased, to return to work.

Summary: An explanation is advanced for one of the disasters which may befall the surgeon in treating injuries of the extremities.

Four cases, three of fractures and one of contusion, are submitted as instances of this unfortunate complication in treatment of trauma.

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ARTERIAL HYPERTENSION*

By THOMAS P. SPRUNT, M. D.
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AMONG the most frequent and therefore the most important conditions met by the physician are the cardio-vascular disturbances and heart failure. One of the most common causes of heart failure is arterial hypertension that begins, we believe, as a functional condition and therefore issues a direct challenge to medical science for the development of a satisfactory prophylaxis and treatment during its early stages. It constitutes today one of the important problems of medicine concerning which there are few definite facts and many theories. It is a subject of active interest and research and it is possible that some very practical help may be forthcoming before very long from some of these investigations. The condition seems to be an example of the body's ability in adaptation and at the same time illustrative of its limitations in that respect. In the early stages a demand is made for more efficient circulation and this demand is met in a prompt and efficient manner. The method of the response however is not without its stress and strain that ultimately lead to distressing sequelæ.

Physiology of the Circulation: Among the wonderful mechanisms of the human machine not the least remarkable is that by which the circulation of the blood is maintained under the varying demands made upon it day by day. The main business of the circulation takes place of course in the capillaries of the tissues and of the lungs. This capillary bed in the aggregate is much the widest portion of the vascular stream. Here the blood flows more slowly and time is afforded for those exchanges between the blood and the tissues upon which the nourishment of our body and life itself depend.

The entire circulatory apparatus with its controlling mechanism is adapted for the maintenance of this capillary flow and for this purpose there is an unusually efficient system of pump and pipe lines in the heart, the arteries, the arterioles, the capillaries themselves and the veins. The regular and rhythmical beat of the heart forces the blood into and through the arterial system. The elasticity of the large vessels stores up some of the energy of the heart beat and with the aid of the contractility of the smooth muscle in the arterial wall helps in the propulsion of the blood. The maintenance of a certain degree of contraction of the musculature of the small arterioles (tonicity) offers some resistance to the passage of the blood stream and determines to a certain extent the amount of blood and the rapidity of its flow through any given capillary area. Since the pipe lines of this circulation are not rigid tubes but vitally elastic and muscular ones, it follows that the pressures in the different parts of the circulatory apparatus are not the same. The pressure is quite high in the ventricles during their contraction and in the large arteries next to the heart. It gradually diminishes as the individual arteries become smaller and the blood stream as a whole becomes wider. It is considerably lower in the capillaries than in the small arteries and lowest of all in the veins where the blood flow is rapid but under slight pressure.

The term "blood pressure" may refer to the tension anywhere in the vascular bed but in ordinary parlance it usually refers to the arterial pressure and particularly to the pressure in the brachial artery where it is routinely measured. We are all familiar with the terms "systolic pressure", or the pressure at the height of the pulse wave, "diastolic pressure", or the minimal pressure that is constantly maintained in the arterial system owing to the nature of the arterial walls and the resistance offered by the tonicity of the

*Original Paper

small arterioles. Then there is the "pulse pressure" or the difference between the systolic and diastolic pressures.

Factors Regulating Arterial Pressure: Not only is the arterial pressure different in arteries of different sizes but it varies many times a day in the same artery depending upon the demand made by the body for more or less flow of blood. We know that the arterial pressure is very much less during sleep than during periods of rest in the waking hours. And we know, too, that during active exercise the pressure is much higher than when the body is at rest. The chief factors by which the arterial pressure is maintained and varied according to different states of bodily activity are: (1) the force and rapidity of the heart beat, (2) the elasticity of the arterial walls, (3) the blood volume and viscosity of the blood, and (4) the contractility of the small arterioles. Under uniform conditions these factors maintain the arterial pressure at a constant level. There seems to be a particularly delicate adjustment between the degree of tone of the small arterioles and the heart action, and from the rapidity with which the reciprocal mechanism acts it would seem that the correlation of their activities must occur through the autonomic nervous system. This view is strengthened by the well-known influence of emotional and other psychic factors upon the heart beat and upon the arterial pressure as well as by the result of animal experimentation.

Autonomic Nervous System: The autonomic nervous system, including the vasomotor nerves, is one of the very important mechanisms for maintaining the equilibrium of the fluid matrix of the body and for coördinating the various vital functions. We are taught that there are special vasoconstrictor nerve fibres kept in a continuously tonic state of activity by a vasoconstrictor centre in the brain stem, that there are efferent vasodilator fibres and, in addition, afferent pressor fibres that tend to stimulate the vasoconstrictor centre and afferent depressor fibres that tend to depress its activities. A similar nervous mechanism aids in controlling the heart action. Through a great many reflexes as well as by psychic and emotional factors, the different parts of the circulation are coördinated and changes in pressure and in blood flow are brought about.

Chemical Substances: In addition to reflex, psychic and emotional factors, other influences may play upon the autonomic nervous system. There are chemical substances in the circulating blood, chemical messengers or hormones that have a special affinity for the autonomic nerves. There are other substances —drugs of one sort or another that when injected into the blood stream exert pressor or depressor effects. There may be substances derived from the food that behave similarly or substances elaborated during the normal metabolic activities of the body. Such chemical materials in the circulating blood may act upon the vasoconstrictor centre, upon the nerve endings in the vessel wall or even upon the smooth muscle itself.

Pathological Physiology or Pathogenesis of Hypertension: The earlier ideas that high blood pressure was due to disease of the kidneys or at least to arteriosclerotic changes have been abandoned. The great variations in the height of the blood pressure in the earlier stages of the disease are against this hypothesis and the absence of organic changes in the kidney or in the arteries in cases that die early of some intercurrent disease definitely disposes of this possibility, so that now it is universally recognized that arterial hypertension begins purely as a functional disturbance without demonstrable organic change.

We have to consider in the pathogenesis of high pressures the three important factors that maintain the normal blood pressure, namely, the force of the heart beat, the amount and viscosity of the blood, and the peripheral resistance to the blood flow. All three of these factors have some importance in changed blood pressures, the first two to relatively slight extent. We see heightened systolic pressures in irritable hearts, as for example, in hyperthyroidism. We see increased blood pressure in some cases of poly-

cythemia vera from the increased amount and viscosity of the blood. But these factors are not important in the genesis of the typical case of essential hypertension. Physiological experiments have shown definitely that essential hypertension begins with increase in the peripheral resistance by contraction of the small arterioles. First there is contraction of the musculature of the arterioles with increased peripheral resistance and rise in diastolic pressure. The effect of this change on the heart is an incomplete emptying of the left ventricle, slight dilatation with increased diastolic ventricular size elevating the initial tension within the ventricles. This stimulates the cardiac musculature in consequence of which the systolic volume again equals or even exceeds the normal. This mechanism results in restoring a satisfactory capillary circulation in spite of the arteriolar constriction. Comparison of clinical and of experimental pulse tracings indicates that there is also a loss of elasticity in the larger arteries.

The primary change then is an increased peripheral resistance in the arterioles. How is this change brought about? Here it must be admitted that we do not know. There are many theories that are being actively subjected to experimental tests. Is it on a neurogenic basis, or a physico-chemical basis, or a combination of the two?

From the neurogenic standpoint, is it primarily an effect upon the nerve endings like the action of adrenalin, or does it occur through a change in the vasoconstrictor centres? Among the kinds of effects that might operate upon the vasomotor system one thinks of, first, mechanical effects; second, psychic and emotional effects, and third, chemical effects.

In regard to the question of peripheral or central origin of the disturbance, the German clinician, Volhard, is an exponent of the former and Raab of the latter. Raab has recently published from the First Medical Clinic of Vienna and from Harvard University the experiments on which he bases his opinion that in the pathogenesis of essential high blood pressure as a rule there is an abnormal irritability and excitability of the cerebro-medullary vasomotor centres, and as a cause of this condition an insufficient blood flow and resulting lack of oxidation and an acidification of the centre region. This he attributes to a diminution in the elasticity of the vessels, to an arteriosclerosis in this region, and perhaps also to spasms of the vessels leading to the base of the brain. This initial change in the vessels at the base of the brain seems to me the least satisfactory of his hypotheses. He cites first then the anatomical features leading to a local ischemia, and second, the abnormal irritability of the vasoconstrictor centres. He postulates (a) a diminution in the blood flow through the brain in hypertension, (b) an abnormal irritability of the vasoconstrictor centres, (c) the presence of unoxidized acid metabolic products in these regions.

(a) If there is a diminution of the blood flow through the brain, then one should get a fall in pressure by increasing the blood supply. This obviously could not be done by means of drugs that might affect any part of the vascular tree, so he tested this hypothesis by using diathermy at the base of the brain. As a result of this procedure there was practically no change in normal blood pressures. In the reacting hypertonics (approximately 50% of the patients with high pressure) there was obtained a fall in pressure averaging 30 millimeters of mercury.

(b) In attempting to establish the hypothesis of an abnormal irritability of the vasoconstrictor centres he cites the reduction in high pressures by means of narcosis.

By means of re-breathing carbon dioxide he obtained a rise in the blood pressure in hypertonic patients much greater than in normal people of the same age. He then asks what will be the result of diminishing the amount of carbon dioxide and tests this by means of hyperventilation of the lungs. He finds that in normal people there is little or no change but in patients with hypertension there is a diminution in the blood pressure averaging 28 millimeters of mercury.

(c) By means of perfusion experiments in animals, perfusing lactic acid through the brain stem, he reports that the vasomotor centre is affected with a rise in blood pressure without affecting the respiratory centre except under extreme conditions.

The influence of *psychic and emotional factors* is considered by most observers as important and far-reaching. We shall return to them later.

Chemical Substances: Those students interested in the chemical possibilities have sought for substances in the blood and in the tissues that raise the blood pressure (pressor substances) and substances that lower the blood pressure (depressor substances). Pharmacologists are interested in isolating such compounds and determining their role in the body's physiology. Clinicians in addition are intrigued by the possibility of finding some depressor substance that will lower the blood pressure in cases of arterial hypertension. It is pointed out that our knowledge of hypotensive or depressor substances is more extensive than that of hypertensive or pressor substances. Indeed, it seems that adrenalin is the only pressor substance whose presence in the body has been definitely demonstrated, while there are several known depressor chemical compounds.

It is of course conceivable that an elevated blood pressure may be due to an increase in the amount of pressor substances or, on the other hand, that it might be due to a decrease in depressor influences.

For a long time, several authors, including Vaquez, have championed the view that hypertension is due to an overactivity of the adrenals, but no one has yet proved conclusively that there is an excess of adrenalin in the circulation of patients suffering from arterial hypertension. We do know that with certain rare tumors of the medulla of the adrenal gland there is a clinical picture associated with marked paroxysmal hypertension, with increased pulse rate, sweating, tremors, and other nervous manifestations occurring in definite paroxysms. Although adrenalin has not been demonstrated in the blood in such patients, the symptoms are so characteristic of excessive adrenalin effect and such large amounts of adrenalin are present in the tumor tissue that this condition is generally accepted as due to a hyper-adrenalinemia. When the tumor is successfully removed surgically, the patient recovers entirely, and it is an interesting fact that if the tumor is not removed the case may later on become one of permanent arterial hypertension. Thus it is demonstrated that at least one form of high blood pressure may be due to an excess of adrenalin in the system but these cases are so unlike those of essential hypertension that we are not justified in extending this theory in the pathogenesis of all cases.

It has been shown that certain pressor compounds, notably amines, may be produced by bacterial decomposition of protein. This has led to speculations regarding the absorption of such products from the intestinal tract with a resulting hypertension. One of these substances, tyramin, has been studied particularly and found to produce a marked elevation in blood pressure and to be absorbed readily from the intestinal tract. Its presence in the body, however, has not been definitely demonstrated, although Hare reports the discovery of a ferment in the liver capable of destroying tyramin. The presence of tyraminose in the liver suggests the possible mechanism by which this pressor substance absorbed from the intestinal tract is destroyed and rendered innocuous.

Major and his associates have been studying for years guanidin compounds, some of which are pressor substances while others are depressor in character. Guanidin and methyl-guanidin are pressor substances, and glycocyanin is a depressor compound. They have found that 50% of the cases of essential hypertension show an increase in the blood of some substance giving a color reaction for guanidin. All of their cases of chronic nephritis with hypertension have shown an increase in this substance. They have never found it in a person with normal blood pressure. They have not yet, however, succeeded in proving positively that the substance pro-

ducing the color reaction is guanidin. Owing to the chemical difficulties involved it has not yet been proved satisfactorily that guanidin or methyl-guanidin exists as such in the body normally. Major states that many patients with arterial hypertension whose kidney function is apparently normal when tested by the usual methods are unable to excrete methyl-guanidin in the way that healthy individuals do. They are not sure whether this means perhaps that such individuals have a peculiar physiologic anomaly of the kidneys which prevents them from excreting methyl-guanidin normally, or whether this inability to excrete methyl-guanidin may be merely a very delicate test for early renal insufficiency.

When we consider the depressor substances we find that several have been definitely isolated and identified in the blood and in the normal tissue. They are histamin, cholin, acetylcholin, adenylic acid. These substances have definitely been demonstrated in the tissues of the body but ideas as to their normal function are still highly speculative. Their use as therapeutic agents for the control of high blood pressure has been disappointing. Histamin, for example, is a highly toxic substance, reduces blood pressure too rapidly, with the production of distressing symptoms that may be followed by a subsequent rise in pressure above the initial level. Major has recently announced the discovery and crystalization of another compound present in the brain and other tissues that he considers definteliy different from histamin and from cholin compounds.

I have reviewed some of the recent research work in order to indicate the present trend of investigation in this field. These researches are adding to our knowledge of hypertension, or at any rate to its possibilities, but have so far made no material change in our therapeutic approach to the problem. One type of experiment that I have neglected to mention is the production in animals of a chronic progressive arterial hypertension by the removal of depressor afferent nerve fibres running to the carotid sinus. No one has yet been able to demonstrate any definite change in such nerves in this region in man.

CLINICAL FEATURES. Types of Hypertension: European clinicians divide hypertension usually into two different types, —the so-called primary or essential hypertension, and the toxogenic hypertension, including in the latter those associated with glomerulo-nephritis, with the toxemias of pregnancy, and with lead poisoning. This is Pal's classification of primary and of toxogenic hypertension.

Volhard distinguished between the white hypertensives with evidences of kidney disease, with high fixed pressure, with narrow straight arteries, and pallor of the skin. This type he contrasted with the red hypertension, without evidence of kidney disease, with a more variable blood pressure, with tortuous and apparently thickened arteries, and a red skin. Their ophthalmologists indicate their ability to distinguish between the two types. In Popper's recent statistics of one thousand cases from Pal's clinic in Vienna the primary or essential hypertensions outnumbered the toxogenic type by about fifteen to one.

In this country it is customary to distinguish between the hypertensions due to chronic nephritis and the primary hypertensions that may ultimately show evidence of a chronic nephritis, the nephritis in the latter case being judged, however, as secondary and not primary to the blood pressure change. There is genuine skepticism as to the justice of such distinctions, inasmuch as we have no very satisfactory criteria for this separation into types, either on the basis of clinical examination or pathological findings. Many observeres are, for this reason, inclined to look upon the different types as variations in degree and not in kind, or in other words, that they are merely different stages of the same general process. There is, we know, great variation in the time of onset and in the rapidity of progress in different cases of arterial hypertension and if one analyzes the statistics there may be seen a certain parallelism between what the Europeans call toxogenic hypertension and what

we speak of as the malignant form of chronic arterial hypertension that may run its course in a few months to a few years. Clinically, patients of this type show the following distinctive features: (a) persistent, excessive hypertension, (b) violent headaches, (c) rapid progressively downward course, (d) sudden loss of weight and strength, (e) typical retinal changes, (f) a course resistant to treatment, and (g) a termination with a functional breakdown of some essential organ, usually the kidney or the heart.

Etiological Factors from Clinical Analysis: In searching for causes of chronic arterial hypertension let us keep in mind the fact that very few pathological lesions are referable to a single cause. Even with an infectious disease whose extraneous exciting cause is definitely recognized there are other predisposing etiological factors that determine the susceptibility of the patient, the time, the manner, the extent, and the severity of the infection. Physicians have always recognized the existence of predisposing causes. They have noted frequently that of four children exposed to scarlet fever only one may become ill; that of three inveterate drunkards one may die of cirrhosis of the liver, another of delirium tremens, and the third live perhaps to be ninety years of age and attribute his longevity to the excessive use of alcohol. Again it is noted that several members of one family may commit suicide during periods of mental depression while no such happening occurs in another family living under the same conditions. There is here the suggestion of inherent differences in men themselves as well as in their surroundings. But although such facts are of common knowledge, scientific medicine, for many decades, until recently paid scant attention to anything except the extraneous causes of disease. During the present century, however, biologists have been interested less in the study of the origin of species and more in the origin and development of the individual with careful studies of heredity. Physicians also have become more interested in the study of the constitution and of predisposition to disease. While it is not considered that diseases are inherited as such, it is believed that our germ plasm may contain the determiners of abnormal traits as well as of normal traits, and if the environmental factors are suitable for the development of the abnormal traits, disease may result. Hence we must keep in mind these two sets of factors, those of heredity and those of environment, especially in the consideration of chronic disease.

What evidence is there that inheritance factors are of importance in the occurrence of arterial hypertension? First, the fact that certain families may contain several members who develop hypertension relatively early. Second, certain physical and mental traits that are so characteristic of such families and that are so often found in the victims of hypertension. We are all familiar with the stocky build, short thick neck, red face, and tendency to obesity that make up the physical type often spoken of as the pyknic habitus or the habitus apoplecticus, and with the mental characteristics frequently associated with it, namely, the tenseness, the tendency to worry, the over-seriousness, the concentration, the narrowing of interests, the inability to play, traits which often lead to success in business or profession. Third, the frequency of hypertension in victims of migraine, an exquisitely hereditary disorder usually associated with labile vasomotor nervous systems. Fourth, the repeated demonstrations by actuarial and statistical methods that the duration of life in man is largely determined by his inherited physical and chemical make-up. At present we may say somewhat vaguely that constitutional inferiorities of the vascular, the nervous, the metabolic and endocrine systems play an important role in the pathogenesis of arterial hypertension.

Environmental Factors: Naturally the environmental factors demand our particular attention for, however great or small the emphasis placed upon innate characters, it is in the study of environmental influences that we may hope to find a more satisfactory and more definite basis for prophylaxis and therapy. Analyses of the histories of hypertensive

patients point toward certain types of factors that may be roughly grouped as follows: (1) hygienic faults that increase the wear and tear of life on either the mental or the physical side (over-work, anxiety, worry, excitement, social dissipation, excesses of various sorts); (2) infectious processes (recurring tonsillitis, scarlet fever, typhoid fever, oral sepsis, influenza) that may serve to increase the wear and tear or may perhaps exert some more direct effect upon the structures involved; (3) chronic intoxications of exogenous or endogenous origin (lead poisoning, chronic alcoholism, excessive use of tobacco, over-indulgence in food, chronic constipation); (4) any external influences that may favor endocrine disturbances and metabolic faults (particularly thyroid dysfunction, the menopause, obesity, diabetes and gout). There are naturally differences of opinion among physicians as to the relative importance of these several factors. Quite probably different ones are operative in different cases. However we may criticize or deny the importance of any one or more of the environmental factors just mentioned we may all unite upon the importance of the inherited factor. The predisposition must be present.

Hypertension is a very common and widespread condition. It is doubtless increasing as more people are living to the age when it usually appears, that is, after forty years of age. Although it is a very widespread and common affair, it is a curious fact that the Chinese, at least in their own environment, seem not to have the disease. This apparent immunity is attributed by some observers to their philosophy of life, by others to their diet, and by still others to the absence of its determiner in their heredity.

Symptoms: We are all familiar with the symptomatology, with the fact that there may be no symptoms whatever for years as well as with the lamentable manifestations in the terminal stages. Common enough, of course, are migraine attacks or morning headaches, dizziness, palpitation, extrasystoles, rheumatic pains that may be affected by changes in the weather and by the seasons of the year. Variations in the psychic sphere are common. There may be outspoken feelings of insufficiency. The patient tires easily, both physically and mentally. He lacks energy and interest. He may be irritable, nervous and pessimistic. Many physicians believe that the symptoms are not due so much to the high pressure itself as to the great variations in pressure, for such complaints are less frequently seen in patients with the high fixed pressure of nephritis. It may also be a significant fact that many patients make no complaints until they have accidentally discovered the existence of a high blood pressure.

Careful note must be made of any complaint suggesting the possibility of myocardial weakness, for example, feelings of discomfort and fullness in the epigastrium, slight enlargement or tenderness of the liver, slight dyspnea on exertion or attacks of paroxysmal dyspnea especially at night.

Prognosis: The disease as we have said begins as a functional change in the circulation, doubtless in the beginning a compensatory process, but later on through the vicious circles that are established the pressure continues to rise and marked stress and strain after a variable number of years are exerted on the arteries, the heart and the kidneys. The end results in such cases are now well-known and they are in the order of their frequency and importance: (1) heart failure that occurs in something over half of the cases, (2) cerebral vascular accidents comprising from 15% to 25%, (3) intercurrent infection and miscellaneous causes of death, (4) renal insufficiency.

The statistics in such a disease are usually based upon hospital material and may vary with the difference in the types of hospitals from which the reports come. There is a surprising number of vascular accidents in the Vienna statistics published recently by Popper. In his list more than half the deaths were due to apoplectic strokes. As the end stage of essential hypertension, renal insufficiency is relatively unusual except in that type of case that we speak of as malignant hypertension which usually occurs in younger ages.

Many patients with hypertension are very fearful of apoplexy and they often seem to be comforted by the statement that this accident occurs less frequently than most people are inclined to believe. Both the patient and the physician may take some comfort in the fact that usually the hypertensive is given warning of a changed condition by the gradual onset of symptoms of circulatory failure.

It is of great value to the physician to be able to collect important prognostic data. While we may frequently err greatly in predictions about any individual case, there are certain general rules that are helpful in forming some idea of the probable duration of life and of the stage that the process has reached. We therefore examine carefully the behavior of the blood pressure under usual conditions and under circumstances of quiet and rest and we examine with particular care the arteries, the heart and the kidneys.

Stieglitz suggests the use of amylnitrite as a quick test of the possibility of lowering the blood pressure, but most physicians prefer to place the patient under conditions of rest and quiet and watch him over a brief period.

In studying the arteries we make note of the superficial vessels, the radials, the brachials, the temporals and the arteries of the feet and ankles, we inspect the retinal vessels by means of an ophthalmoscope, we examine the aorta with the fluoroscope, the coronary arteries by inquiry into the symptoms, study of the heart's efficiency and perhaps by means of an electrocardiogram, and the renal vessels by examining the urine for albumin and casts and blood, and by testing the blood for retention of nitrogenous products. In analysing a series of cases from this standpoint some years ago, I came to the following conclusions:

"In summary it may be said that, with the onset of arterial hypertension, the patient's period of health and well-being is not necessarily ended. A series of fifteen favorable cases is presented in which there was either a complete lack of progression of the hypertension or else marked improvement in the blood pressure after periods of from five to seven years.

"The condition of the arteries is the most important prognostic sign.

"Patients with no sign of arterial change may be expected to do well. Those with normal urine and those with normal aortas in general show a rather favorable prognosis.

"Patients with marked retinal changes, with any sign of myocardial insufficiency, with precardial pain, with renal insufficiency, may be expected to live only a very few years.

"From the standpoint of age the presence of a hypertension in the very young is of rather graver significance than in the very old.

"The onset of hypertension during the menopause presents the most favorable prognosis of all."

Treatment of Patients with Arterial Hypertension: In this condition even more than in others it is well to remember the aphorism that we should treat the patient rather than the disease, and in attempting to evaluate the results of any given method of treatment we must remember the surprising change that may take place in many patients following the simple institution of rest and relaxation.

The therapeutic plan for patients with hypertension or other chronic ailment should follow and be based upon a thorough diagnostic study by which we endeavor to recognize all discoverable deviations from normal structure and function, to inquire into their possible internal and external causes, and to acquire as full a knowledge as is practicable of the physical, psychic and social status of the patient. When the study in a case of chronic arterial hypertension is completed and the diagnostic summary made, we may outline the therapeutic plan with due attention to the several essential features disclosed by this study. There may be needed changes in the diet, in the general hygiene of work, play, rest, exercise, baths, and care of the excretory functions, the correction of easily remediable defects like superficial focal infections, psychotherapy and the necessary

symptomatic therapy. All the way through one should mix common sense liberally with one's therapeutic fervor. Avoid asking the impossible. Attempt to win the confidence of the patient and to secure his whole-hearted coöperation.

Diet: It is not our custom to limit the diet excessively in these cases unless obesity is present. Then by a reduction in the caloric value, chiefly in fats and in carbohydrates, the weight may be reduced to the normal level or a little below that level often with great benefit to the patient. In the absence of renal or myocardial insufficiency, there is no conclusive evidence that the hypertensive patient does not handle an ordinary diet satisfactorily. We believe that more harm than good is apt to accrue from a marked reduction of the protein content of the food. In all cases the protein intake should at least equal the minimal requirement of one gram of protein per kilogram of body weight which is about the same as one-half gram of protein per pound of weight. Salt and other condiments may be reduced to the minimum for satisfactory palatability but not to the point of making the diet insipid and undesirable.

Hygiene: As to general hygiene, in the first place, as many of these patients have been leading very strenuous lives and are perhaps highly nervous and worried about their condition a thorough rest treatment of several weeks in bed is usually helpful. During this time other features of the therapeutic regimen may be instituted and the physician has an excellent opportunity to explain the situation to the patient, to calm his fears as far as possible, and to enlist his coöperation in the matter of diet and method of life which he should follow in the future. After an initial period when the blood pressure may be followed daily to note its spontaneous variations, it is well to pay less attention to this feature and to explain to the patient that a rise in his pressure is often a compensatory process that is beneficial in his circumstances and the direct height of the blood pressure is far less important than the conditions that underlie it. After the rest period there may be a brief vacation away from home before the patient is permitted gradually to take up his routine duties again. It is usually unwise, we believe, to suggest that the patient give up his work or that it be changed too radically. Certain changes may often be made with great benefit and these must depend upon the individual study of each case. An active lawyer, for example, may be persuaded to give up his court work if this has been found to be too exacting, or a physician may be urged to change from general practice to office work, or to accept some position that permits of a sedentary life. It may be suggested to the business man that he delegate the most unpleasant of his duties to others and that he reserve a portion of several afternoons for rest and for out-of-door relaxation. A rest lying down for an hour after the mid-day meal is a valuable provision in all such regimens and the stipulation should be made that there shall be no work at night. Sometimes patients are advised to remain in bed on a simple milk and fruit diet for the last two days of each month or even for one day of each week..

The matter of exercise is important. We believe that the hypertensive patient without myocardial or renal signs should be encouraged to take mild exercise out-of-doors daily; for observation has shown that they often do very much better under these circumstances. Golf in moderation, walking, and motoring, are well within his possibilities. It goes without saying that tennis, long hikes, and mountain climbing, as well as all the more strenuous out-of-door sports, should be forbidden. It may be remarked, however, that altitudes up to 3,000 feet above sea level are very well borne by hypertensive patients.

It must be remembered that many of the hypertensive patients have never learned to play. They have never had a hobby outside of their regular occupation. The development of such a hobby may be difficult but is important.

In the matter of baths, the hypertensive in good general condition may follow his usual habit in this respect. In the later stages of

the disease the bath should preferably be tepid or slightly warm and never should be extremely cold or extremely hot. The Neuheim bath, or carbon dioxide bath, although in normals it usually increases the blood pressure, seems to be beneficial in cases of hypertension. Among other methods of physical therapy, diathermy, especially by the method of auto-condensation, has been found useful in some cases.

We prefer to regulate the intestinal function by means of the diet, the drinking of a suitable amount of water, out-of-door exercise, regularity in habit, and if necessary the use of mineral oil or combinations of oil with agar. It may often be helpful to give an occasional saline laxative.

Focal Infections: Although we cannot be sure that focal infections play an important role in these cases, we believe that they should receive appropriate treatment if for no other reason than the promotion of the patient's general health. Definitely infected teeth should be extracted and their sockets curetted; pyorrhea should have thorough treatment. A significant prostatitis should be treated. The question of the removal of infected tonsils or the undertaking of other more serious operations must be determined in each individual case.

Psychotherapy: Almost all patients with hypertension may be benefited by the use of psychotherapy properly conceived and tactfully and persistently presented. In the broad sense of dispelling fear, of inspiring confidence and hope, of educating the patient regarding the nature and course of his malady, of guiding him toward a more hygienic mode of life and of cultivating in him the ability to face realities with serenity, psychotherapy will be found to be the most potent and serviceable agent that we possess.

In arranging the general regimen and particularly in reference to psychotherapy it is highly desirable that the attitude of the patient's relatives and of his daily associates receive some attention. It is most unfortunate to have over-anxious members of the family constantly reminding a patient of his high blood pressure. Such nagging may do him a vast amount of harm.

Symptomatic Therapy: There is a considerable division of opinion as to the advisability of using direct measures for the reduction of the blood pressure. In the first place, those of adverse opinion point out that the most effective methods are by means of injections that are obviously unsuited to a chronic or slowly progressive disease. In the second place they point to the possible dangers in some cases of a rapid reduction in pressure. Particularly is this true in patients with marked cardiac hypertrophy or with coronary artery disease. The coronary arteries receive most of the blood from the aorta during the diastole of the heart and if the diastolic pressure is greatly reduced from its usual level the nutrition of the heart muscle may suffer. In cases with cerebral vascular disease accidents may also sometimes occur. Perhaps we do relatively little harm in this way because the methods used are usually but little effective except in those cases where the pressure may change spontaneously during the course of the day, and in cases where the most harm might result it is prevented by the fixed nature of the hypertension. Harris and Pratt recently attempted to decide this point by experiment. Their desire was to reduce the blood pressure artificially and to determine the cardiac reserve power as well as the renal function under the altered condition. In their opinion the tests proved conclusively that the heart suffers definitely from treatment by pressure-reducing drugs and that there was a corresponding impairment of renal function.

Of drugs that have been widely used, iodine is probably a relic of the days when the condition was confused with somewhat similar cases of syphilis and seems to be of no value in hypertension or in arteriosclerosis. The nitrites have as a rule a quick and evanescent action of considerable value in vascular crises, like angina pectoris, but of little help in the chronic conditions. Bismuth subnitrate is offered by some clinicians as a mild, persistent arterial dilator. It is not toxic, it is not expensive, and it can be administered by

mouth. Owing to the insolubility of the salt, slow decomposition takes place liberating nitrate (No. ^{3}) ions which are promptly reduced to nitrite (No. ^{2}) by the colon bacillus. Thus minute quantities of nitrite ions are continuously absorbed. Stieglitz advises the administration of ten grains of bismuth subnitrate thrice daily in capsules. Ayman, however, reports unsuccessful results with this drug after its long administration to a carefully controlled group of patients.

Sodium or potassium sulphocyanate has its advocates. The German clinician, Westphal, uses sulphocyanate to combat hyper-cholesterinemia on the assumption that this is a factor in arterial hypertension. Blum reports often a striking and valuable diminution in the pressure when given in doses of 0.2 gram or 0.3 gram three times a day for two or three weeks. Goldring and Chasis, on the other hand, emphasize the toxic effect of thiocyanate and report two deaths apparently due to this drug in a series of fifty patients that were treated with it.

Cucurbocitrin has been used with success by some physicians. I have not found it helpful.

Mention has been made of the possible dangers and of the inconvenience of injecting depressor substances. Acetylcholin, liver extract, and other extracts that have been developed in different laboratories are often effective in reducing the blood pressure and may be utilized in certain crises.

Venesection is sometimes used, not only in cases of congestive heart failure, but for the purpose of reducing the hypertension itself. The removal of only a small amount of blood can be remarkably effective. More conservative physicians point out its temporary effect which rarely persists longer than twenty-four hours and advise against it for this reason and for fear of weakening the patient and aiding in producing an anemia. It is best to reserve this method also for emergencies. In certain European clinics cupping and leaches are extensively used. The brisk epistaxis that occurs not infrequently and spontaneously in patients with high blood pressure seems often times to have a favorable effect.

Symptomatic therapy of single symptoms of which the hypertensive patient often complains may do much to make him more comfortable even in the advanced stages. The insomnia, the headaches, the dizziness, the feelings of nervousness and of apprehension should receive attention. Some of these patients, as we have noted, suffer from periodic attacks of migraine. These and other headaches should be relieved. Simple remedies may suffice as for example a five-grain tablet of aspirin or a similar dose of pyramidon, or a combination of either of these with a grain or a grain and a half of caffein citrate. The usual cup of coffee in the morning is a valuable tonic for many of these patients but we advise against the use of coffee for the evening meal if there is any tendency to insomnia. If the headache be very severe a quarter or a half grain of codein may be combined with the simpler remedies and is usually effective. It gives the patient a sense of comfort and of confidence to realize that he has a potent remedy even for the distress of a severe migraine attack. Morphia is rarely if ever necessary for such headaches.

Phenobarbital, other barbiturates, chloral hydrate, and for short periods, bromides, are very useful adjuncts in allaying restlessness and apprehension and in promoting rest and sleep. When the patient is aged or shows marked evidence of arteriosclerosis there is no drug, I think, that is as safe and as effective as paraldehyd if the patient can be induced to take it.

In summarizing the treatment, we may say that if one can remove the cause, this is the ideal method of treatment. Usually we must rely particularly on the dietetic, hygienic regimen, tactful psychotherapy and sedative medication. The milder forms of physical therapy and some of the other methods mentioned above may find a place in certain individual cases.

I have said nothing about the management of the late stages of the disease since these are

separate subjects by themselves, but it should be emphasized, I think, that digitalis is not contraindicated in high blood pressure cases if the symptoms of heart failure indicate the need for it.

Obviously, much more may be expected of prophylaxis than of cure. The physician who discovers in a patient an incipient hypertension, a familial predisposition, or potentially dangerous environmental features, may, by suitably educating the patient and by instituting the proper regimen, do much toward limiting the progress of the disease and postponing its lamentable sequels.

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TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

The numerous articles on collapse surgery of the lung in current medical journals reflect a widespread interest in this subject. Pneumothorax, phrenicotomy, thoracoplasty and other means of collapsing the lung are being employed in an increasing proportion of cases. Improvement in technique is progressing steadily. In the October, 1933 American Review of Tuberculosis, forty articles on thoracic surgery, derived from medical journals of six countries, are reviewed. From this collection a few are here presented.

Progress In Collapse Surgery

Artificial - Pneumothorax Statistics: Artificial pneumothorax is one of the most hopeful and beneficial methods used in the treatment of pulmonary tuberculosis. A survey has been made of a series of cases treated by artificial pneumothorax from 1922 to 1928.

All patients had tubercle bacilli in the sputum before treatment and very few were early cases. Pneumothorax was attempted in 149 cases, out of which 102 were successful. Seventy-five per cent of the patients were between the ages of fifteen and twenty years. Of the successful pneumothorax patients, 29.4 per cent are still alive, while only 1.06 per cent of the unsuccessful ones are alive.

It is impossible to compare accurately these cases with ordinary sputum-positive patients, but there is no doubt that this therapy produces almost immediate benefit.

A Review of Artificial Pneumothorax Cases, G. Hurrell, Tubercle, Sept., 1932, xiii, 542.

Termination of Artificial Pneumothorax: Whereas the indications are well recognized for the induction of pneumothorax in patients with pulmonary tuberculosis, the criteria for its release are less clearly defined.

Seven factors are involved in the decision that the optimum time has been reached for reexpansion of the collapsed lung: (1)the type of onset of the tuberculosis disease, and its course prior to the giving of pneumothorax; (2) the period of time which has elapsed between attempting the pneumothorax, and producing a satisfactory collapse of the affected lung; (3) the rate of disappearance of

tubercle bacilli from the sputum; (4) the existing constitutional symptomatology of the patient as compared with that before pneumothorax; (5) the type of refills; (6) the condition of the contralateral side; and (7) the economic status of the patient.

Physical signs by themselves are relatively unimportant, because even a thin film of air may mask or distort marked pathological lesions in the underlying lung. On the other hand, serial x-ray plates, especially those taken just prior to the induction of the pneumothorax, and for two weeks thereafter, are particularly helpful in that they show the degree of parenchymal involvement before collapse therapy. Later x-ray plates may be misleading, as mediastinal structures may overshadow changes in the parenchyma of the lung.

Of the seven factors listed, the time necessary for the disappearance of tubercle bacilli from the sputum constitutes the most important criterion as to the effectiveness of the pneumothorax. At the time of induction it is futile to estimate the necessary duration of the pneumothorax. Satisfactory pneumothorax for one year to one and a half years should be sought for. Occasionally shorter periods suffice, but far more often the clinical course necessitates a longer space of time.

When release of the collapsed lung has been determined upon, the affected lung should be allowed to expand slowly and under careful observation. An average-sized pneumothorax should require two and a half to three months for complete reexpansion of the collapsed lung. In instances in which air-absorption occurs too rapidly, the rate of expansion may be slowed by small refills; in reverse cases, the rate may be accelerated by putting the patient on graduated exercise.

The reappearance of tubercle bacilli in the sputum, or the development of undesirable constitutional symptoms during the release of collapse therapy, are indications that pneumothorax should be maintained. In cases of large cavitation antedating the pneumothorax, a phrenico-exairesis is advised at the end of the period of pneumothorax before attempting a release of the collapsed lung. This measure is also advocated during release of the pneumothorax if untoward symptoms develop as a result of a shifting of the mediastinum.

Ueber den Abschluss der Pneumothorax-behandlung, M. Gross, Munchen. med. Wchnschr., July 8, 1932, lxxix, 1122.

Expansion of Lung after Artificial Pneumothorax: There have been very few reports on the status of patients in whom artificial pneumothorax has been stopped. In a series of 105 former pneumothorax cases, in which the lung had been reexpanded from one to eighteen years, 81 patients were alive and of these 62 were leading normal lives. Twenty-four patients were dead, and 19 of those living were still "curing."

Most of the cases in this study were in the far-advanced group, and all but 25 had lesions in the other lung. A positive sputum was present in 98 cases, and 75 of these became negative after pneumothorax treatment.

In the patients who are living and well, pneumothorax treatment had closed the cavities and rendered the sputum negative; of those still curing the cavities had not been closed, or extension had occurred to the other lung, or the patients were still recovering from other surgical procedures.

In a group of 38 patients, who had returned to work after reexpansion of the lung, only 3 had relapses in that lung. The former cavity reappeared 3 years after treatment had been stopped in one case; in another case an acute tuberculous process developed in the other lung, followed by cavity-development in the lung which had been originally collapsed, although this new cavity did not appear at the site of the old lesion; in the third case, the cavity reappeared seven years after cessation of pneumothorax.

In another group of 34 patients who returned to work, there were five who relapsed, but the details of the relapses were not known. The total number of relapses in 72 patients who had returned to work was ten, and all of these occurred from 3 to 11 years after pneumothorax was stopped. The average time that pneumothorax was maintained in the 105 cases was 2.6 years.

It is concluded that reactivation following satisfactory collapse is the exception rather than the rule, and that an effective pneumothorax of two year's duration, with a negative sputum for at least one year, gives reasonable assurance that the lung may be expanded with safety. Even in those cases in which the pneumothorax is unintentionally lost at the end of 2 years there is no more danger of reactivation, if the cavity has been closed and the sputum rendered negative, than if the collapse were maintained for longer periods.

The Present Status of One Hundred Pneumothorax Patients after from One to Eighteen Years' Expansion of the Lung, E. N. Packard, J. Thorac. Surg., August 1932, i, 581.

Bilateral Artificial Pneumothorax: The application of bilateral artificial pneumothorax on a wider scale is advocated. Selective collapse of the diseased areas of the lung, while permitting function of the healthier portions, is the procedure of choice. Adhesions mitigate against this procedure more than any other factor, and cauterization of adhesions is indicated when possible. When it is probable that a cauterization will enable the healthier parts of the lung to attain a better function and will secure more ideal conditions for a gradual reexpansion of the affected parts, cauterization is indicated, even if the artificial pneumothorax has been clinically successful.

In limited disease the complete thoracoplasty now in vogue should give way to partial thoracoplasty or apicolysis. In bilateral artificial pneumothorax needles with side openings should not be used, as they are more apt to perforate the lung than the ordinary needles. Combinations of methods may be desirable, such as phrenicectomy or plombage or partial thoracoplasty on one side and pneumothorax on the other. A bilateral phrenicectomy has been carried out with relatively good result and without any serious disturbance of function.

A case of bilateral thoracoplasty is reported. The patient, a young girl, was febrile for 18 months prior to the operation, but has remained afebrile ever since. The expectoration, which was rather copious in amount, decreased to about 10 cc. in 24 hours but was still positive for tubercle bacilli.

Selective Lung Collapse in Bilateral Disease, J. Gravesen, Lancet, Feb., 18, 1933, ccxxiv, 354.

THE PROBLEM OF THE INDIGENT

On December 19 a bulletin was sent out from the office of the Executive Secretary urging each component county medical society in West Virginia to immediately appoint a local committee in each county to cope with the many problems that have recently arisen in providing medical service to persons receiving federal aid. Thus the Association made its first direct move to take control of a problem that has daily become more troublesome.

The policy of the Association toward this particular phase of medical practice will be found in the editroial columns of this JOURNAL. There, also, will be found the mechanical set-up for carrying out our objectives. By the time this issue of the JOURNAL is mailed out, the Association expects to have its machinery in full operation to handle all future county and state problems involving emergency medical aid to the indigent.

That our experience under the meagre and inadequate fee schedule of the past six months has been anything but satisfactory is evidenced by the number of official complaints that have been received at the Association headquarters. Many county medical societies have adopted and sent in resolutions protesting against both the schedule of fees and the method of administering emergency medical aid.

While we hold no brief either for the schedule or the plan, we do wish to point out that we have all been experimenting in an entirely new era. Never before have we had so many destitute families and never before has the federal government stepped in with an allowance for medical service. The past six months has been an experiment not only in West Virginia but in every other state of the Union. The experiment, so far as the medical profession of this state is concerned, has not been satisfactory. That is why the Association has set up the machinery to work out its problem with the aid and support of the various local county committees. The Association asks for and expects to receive the coöperation of its entire membership in this important work.

The most thorough study of this problem from a county angle has been made by the Barbour-Randolph-Tucker County Medical Society. The criticism of this society is also the most constructive. Their report, which was made in the form of a resolution directed to the Council of the Association, will be published in the February JOURNAL.

A. M. A. SCIENTIFIC EXHIBITS

Application blanks are now available for space in the Scientific Exhibit at the Cleveland Session of the American Medical Association, June 11th to 15th, 1934. The Committee on Scientific Exhibit requires that all applicants fill out the regular application form and requests that this be done as early as convenient.

The final date for filing applications is February 26th, 1934. Any person desiring to receive an application blank, should address a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

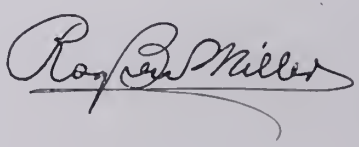
PRESIDENT'S PAGE

I begin my term as President of the West Virginia State Medical Association mindful of both the honor and the responsibility you have placed on my shoulders. I appreciate that honor and I accept that responsibility, for I feel secure in the knowledge that my own humble efforts will have the guidance and support of the medical profession of this state.

The past two years have been perhaps the most eventful in the history of our Association. The program started by Dr. Hoge and so admirably carried on by Dr. MacGregor is just now beginning to bear fruit. I will need the help and coöperation of every member of this organization if we are to continue our advance toward the goal of scientific and economic betterment.

On this page each month I will endeavor to discuss the current problems that are confronting us. If you have suggestions or criticisms, please write me. But for this initial effort I will confine myself to an earnest request that you give me your help and your guidance during the next 12 months.

May the New Year bring prosperity and happiness to us all.



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THE NEW YEAR

With the dawn of a new year we pause to pay just tribute to our outgoing President, Dr. D. A. MacGregor, and to speak a word of welcome to Dr. Roy Ben Miller, his successor. As has so often been the case in the past, we see the administration of the West Virginia State Medical Association pass from one pair of sturdy hands to another of equal strength.

During one of the most trying years in the Association's history, Dr. MacGregor has maintained the Association on the same high level that it has occupied for so many years in the past. During the past 12 months, like so many of his predecessors, he has given his time freely to the work of organized medicine in West Virginia, attending council and committee meetings, county society and district gatherings, civic and service club meetings and various other professional and lay sessions where his presence was requested. In all of his contacts with the profession and the public, Dr. MacGregor displayed the qualities of intelligent leadership that made his administration such a splendid success.

During his term of office Dr. MacGreagor coped with the legislative problems of the 1933 legislature, with the problem of medical aid to the indigent, with the problem of medical appointments at the various state institutions and with the general bugbear of economic depression. While the 1933 legislature did not enact the Association's program, it did kill off more than a dozen hostile measures aimed at the medical profession. While the allowances for medical aid to the indigent are not entirely satisfactory in some sections of the state, they are at least higher than the allowances in 44 other states of the union. While the medical appointments were not made by the Association, the advice of the Association was sought and followed in more than half of the appointments that were made. As for the depression, the leadership of Dr. MacGregor is best shown by the fact that the membership of the Association has actually increased during the lean months of 1933.

Dr. Miller is well schooled in the problems and traditions of the West Virginia State Medical Association. For many years he has served as Councillor from the Fourth district and rarely, if ever, has he been absent from a meeting of either the Council or the House of Delegates. Prior to his election to the Council, Dr. Miller served his local medical society in various capacities. With a wealth of experience behind him and with a keen understanding of our present economic and scientific problems, Dr. Miller is a most fortunate selection as head of the medical profession of this state.

We congratulate Dr. MacGregor upon his splendid record, and extend our New Year's wish to Dr. Miller for a successful and prosperous administration.

A WARNING NOTE

We are pleased to see the Bulletin of the American Medical Association sound a warning note incident to the federal funds now available to the medical profession for emergency service to the indigent. "This movement," says the A. M. A. Bulletin, "should be conducted as an *emergency* measure and should be terminated when the emergency has passed. A fundamental principle of vital importance to the future of medicine is involved. . . . . Emergency relief should be just what the words imply and should be terminated when the emergency is over. Medical

Societies, in entering into agreements, should act on that basis."

The adoption of the federal emergency relief plan has brought forth a world of comment from both medical journals and medical associations. The Council of the Ohio State Medical Association, after recognizing the splendid spirit that prompted the plan, finds "that in some communities there has been a tendency to utilize the inadequate fee schedule proposed by the State Relief commission as a pattern or gauge for general medical services, in spite of the fact that the State Relief commission has specifically stated that the fees are not intended to establish such low rates in ordinary practice."

There follows this comment a list of seven excellent recommendations by the Ohio Council. The Ohio Council has apparently made a deep study of the situation and their recommendations will surely receive due consideration in Ohio, if not in the national plan. The Texas State Medical Association has recently written most of the other state medical societies for data concerning the various state plans already in existence. The Indiana State Medical Society, after a great deal of hard work, recently sent its findings and recommendations to all the other component societies. These state organizations, with many others, are dissatisfied with the present set-up. We can not particularly blame them.

We feel that all these proposed changes and alterations in the plan will do little good because, in our opinion, the plan is wrong from the very beginning. As the A. M. A. Bulletin has so admirably stated, "it involves a fundamental principle of vital importance to the future of medicine." The plan has a tendency not only to fix fees but to destroy individual initiative and to promote state medicine in its worst form. You can not wipe out those tendencies by the raising of fees or by making alterations. And by the time fees are raised and innumerable alterations are made, the emergency will, we hope, be over.

We do not wish to be misunderstood. We are not preaching a gospel of desperation. We realize, of course, that there is much merit in the emergency medical relief plan, in spite of the fact that "it involves a fundamental principle of vital importance to the future of medicine." We offer no defense for the schedule of fees because we feel, like many other state Journals feel, that they are inadequate. Yet if the fees are made more attractive, new problems will immediately arise. The funds available for emergency medical service may soon become exhausted or the plan may become attractive enough to perpetuate itself. In the latter event we will see an end to our present system of medical practice. The immediate wrangle over fees and funds offered by the federal government is the best indication that we are beginning to get into hot water.

IS YOUR NAME CORRECT?

The annual directory of members and honorary members of the West Virginia State Medical Association is published in this issue of the Journal. Shortly after January first the same type will be used to print the annual directory in pamphlet form. This pamphlet directory is given out only to institutions, governmental agencies, etc., that have a rightful use for it.

In view of the above, every member is urged to look up his own name in the roster in this issue, see that it is spelled correctly and that the proper address is listed. Errors or omissions should be called to the attention of the Executive Secretary at once, so that corrections may be made before the pamphlet directory is printed.

EMERGENCY MEDICAL AID

Every member of the West Virginia State Medical Association is vitally interested in the recently inaugurated plan for rendering emergency medical aid to the indigent residents of this state. Briefly, the plan provides for the payment of federal funds to members of the medical profession who are called upon to render medical service to unemployed persons receiving federal aid.

It has been pointed out on more than one

occasion that the plan is a step toward state medicine. That is not the case. The plan *is* state medicine. The question is: Do we want to control the plan until it runs its course or shall we adopt a "hands-off" policy?

The Council of the West Virginia State Medical Association, meeting at Charleston on December 14, felt that we should adopt a definite policy and program to guide us in all future consideration of this important problem. The Council also felt that we should provide the necessary county and state machinery to cope with and control the medical aid which our members provide. With this in mind, the Council adopted the following resolution, a part of which has already been carried out:

Be it resolved, that the Council of the West Virginia State Medical Association adopt the following recommendations incident to rendering medical service to those persons whose names appear on the lists of the E. R. A.

1.—The West Virginia State Medical Association enters into this plan for the period of the emergency only and it shall have the power to designate when the emergency is over.

2.—The control of the administration of the medical relief shall reside with the Association through its designated state and county committees.

3.—The present and future policies shall be subject to the approval of this Association.

4.—The preservation of the personal relationship between the doctor and patient shall be paramount.

5.—The fee schedule in general shall be on a general basis of approximately two-thirds of the customary fees and the payment of fees shall be arranged on as simple a basis as possible to facilitate collection by the doctors.

6.—The free choice of physician by the patient must be insured.

7.—Clinics shall not be formed except as approved by the medical relief committee of the county medical society in which the clinic is anticipated.

8.—It shall not be the policy of the E. R. A. to substitute midwives for physicians in obstetric cases.

And be it further resolved, that this Council recommend the following organization for the purposes of carrying on medical Relief:

A Committee to be known as the Medical Relief Committee of the West Virginia State Medical Association shall be appointed by the President to formulate policies and plans in cooperation with the E. R. A.; to organize a subcommittee in each county to be known as the Medical Relief Committee of the County; to act on all complaints or requests from either the E. R. A. or the county committees; and to gather as accurate reports as possible of the work in each county.

And be it further resolved;—that the county committees shall organize and supervise the work in each county in cooperation with the County Relief administration; shall maintain direct control of the medical relief; shall have power to adjust bills objected to by the E. R. A. as being exhorbitant, false or technically incorrect; shall secure monthly reports of the amount of work done; and shall be zealous to provide only the best of medical care.

CENTRAL TRI-STATE MEETING

The next quarterly meeting of the Central Tri-State Medical Society will be held at the Pritchard Hotel, Huntington, on the afternoon and evening of January 18. Dinner will be served between the afternoon and night sessions.

The program will be opened by Dr. W. W. Point, Charleston, with a paper on "Occiput Posterior Presentations, Their Diagnosis and Treatment." He will be followed by Dr. R. A. Ramsey of Columbus, Ohio, on the subject, "Some Medical Aspects of Thyroid Disease."

Dr. Irving J. Spear of Baltimore will then present a paper on "The Etiology, Mechanics and Treatment of the Neuroses." The program will be concluded by Dr. Arthur M. Shipley of Baltimore whose subject has not yet been announced.

In announcing the above program, Dr. James S. Klumpp, Secretary of the Tri-State Society, said that a large attendance was expected for the January 18 meeting.

LABRADOR HEALTH HABITS

Lockwood School near Sandwich Bay, Labrador, does not prepare its children to move away; it helps them to live easier and better lives in their native country, according to Elizabeth Criswell, who is in charge of this boarding school for isolated children. Her article, "School Health Work on the Labrador," appears in the December issue of *Hygeia.*

COUNTY SOCIETY NEWS

OHIO COUNTY

Dr. H. A. Heise of the Uniontown Hospital Association, Uniontown, Pennsylvania, was the essayist at the December 15 meeting of the Ohio County Medical Society which was held in the Solarium of the Ohio Valley General Hospital, Wheeling. His subject was "Drunkenness", which was presented in a most original and interesting manner and was followed by a general discussion.

RUSSELL C. BOND, *Secretary*.

MONONGALIA COUNTY

Dr. B. M. Stout, Morgantown, was elected President of the Monongalia County Medical Society at a dinner meeting held at the Hotel Morgan on the evening of December 5. Dr. G. R. Maxwell, also of Morgantown, was reelected Secretary-Treasurer.

This was purely a business and social meeting of the society and there was no scientific program. A number of routine business matters were disposed of.

G. R. MAXWELL, *Secretary*.

G. H. H. M. SOCIETY

Dr. W. M. Babb of Keyser was elected President of the Grant, Hardy, Hampshire, Mineral County Medical Society at the November 23 meeting which was held at the Potomac Valley Hospital. Vice-presidents elected were Dr. J. P. Groves, Petersburg; Dr. Harry Rollings, Wardensville; Dr. James T. Daily, Romney; Dr. James T. Wolverton, Piedmont and Dr. J. B. Johnston, Franklin. Dr. T. C. Giffin, Keyser, was reelected Secretary-Treasurer.

Delegates to the state meeting at Huntington next May were also elected at this meeting. The delegates are Dr. Thomas Bess, Keyser, and Dr. Glenn D. Moomau, Petersburg. Alternates are Dr. Babb and Dr. Wolverton.

The scientific essayist of the evening was Dr. Chester R. Ogden of Clarksburg who gave a highly interesting paper on "The More Common Lesions of the Abdomen. There were three clinical cases brought before the society.

T. C. GIFFIN, *Secretary*.

WYOMING COUNTY

A very interesting meeting of the Wyoming County Medical Society was held at the June Tolliver Hotel, Mullens, on the evening of December 7 with 15 members and visitors in attendance. Following a fine chicken dinner in the hotel dining room, the program of the evening was presented.

The chief speaker of the evening was Dr. A. E. McClue, Health Commissioner of West Virginia, who talked on the work of his department and pointed out the importance of coöperation between the health department and the various county medical societies. Dr. McClue said that while he held the office of State Health Commissioner, every effort would be made to place health work in the hands of the private family physicians where it rightfully belongs.

Mr. Joe W. Savage, state secretary, was also present at this meeting and talked briefly upon the work of the West Virginia State Medical Association. Mr. Savage especially urged the County Society to control its own destiny in all matters pertaining to emergency medical aid to the indigent, and suggested the appointment of an active committee to cope with this problem.

WARD WYLIE, *Secretary*.

McDOWELL COUNTY

The regular meeting of the McDowell County Medical Society was held in the Appalachian Community Room Dec. 13, 1933. This was a dinner meeting, which was enjoyed very much.

The paper of the evening was by Dr. C. J. Reynolds of Bluefield, W. Va., entitled "Ureteral Calculi." This was discussed by the several members, and was very enlightening.

H. T. SCHIEFELBEIN, *Secretary*.

BARBOUR-RANDOLPH-TUCKER

Dr. W. S. Michaels of Junior, Barbour County, was elected President of the Barbour-Randolph-Tucker County Medical Society at the annual election meeting held on November 10. Dr. S. J. Skar of Davis and Dr. C. H. Hall, Elkins, were elected vice-preseidents and Dr. Russell Wolfe was reelected secretary-treasurer.

New membership applications were received at this meeting from Dr. John H. Miller of Thomas and Dr. Hubert S. Marshall of Elkins. Both applications were referred to the Board of Censors.

RUSSELL WOLFE, *Secretary*.

FAYETTE COUNTY

The regular monthly meeting of the Fayette County Medical Society was held at the Hotel Hill, Oak Hill, on the evening of December 12 with a good attendance. The first order of business was the election of officers. Dr. W. P. Bittinger, Summerlee, was elected prseident; Dr. P. E. Prillaman, Oak Hill, first vice-president; Dr. J. P. Van Pelt, Oak Hill, second vice-president, and Dr. Ralph Hogshead, Montgomery, secretary-treasurer.

A committee composed of Dr. G. G. Hodges, Dr. F. S. Harkleroad and Dr. Hogshead was appointed to confer with the county Welfare Administrator on problems pertaining to medical aid to the indigent.

The scientific program was rendered by Dr. W. V. Wilkerson of Montgomery on the following subject, "A Consideration of Some of the Major Intracranial Lesions." Discussion of this interesting paper was opened by Dr. R. A. Updike, and was generally discussed by others.

Following the business and scientific program, the doctors adjourned to the dining room of the hotel where refreshments were served.

Ralph Hogshead, *Secretary*.

PARKERSBURG ACADEMY

Dr. E. W. Crooks, Parkersburg, was elected President of the Academy of Medicine of Parkersburg at the annual business meeting of the Society held on the evening of December 6. Dr. Crooks succeeds Dr. R. H. Boice who served during the past year.

Other officers elected at the December 6 meeting included Dr. H. A. Giltner, vice-president and Dr. Welch England, secretary-treasurer. Members of the Board of Censors are Dr. R. Hamilton, St. Marys; Dr. T. W. Keith, Harrisville; Dr. E. D. Moyers, Cairo, and Dr. A. R. Sidell, Williamstown.

Welch England, *Secretary*.

CENTRAL WEST VIRGINIA

Plans for the next quarterly meeting of the Central West Virginia Medical Society are rapidly getting under way and an excellent turnout is expected. It was previously announced that this meeting would be held in February at Gassaway. The February meeting will be held at Sutton instead. The program for this meeting will be announced in the near future.

Eugene S. Brown, *Secretary*.

GREENBRIER VALLEY

The Greenbrier Valley Medical Society met in Ronceverte, December 12. The election of officers was celebrated with a banquet at the Hotel Greenbrier. Dr. Robert E. Baer, of White Sulphur Springs was made President, and Dr. A. C. Lanham of Ronceverte, secretary-treasurer. Twenty members were present.

The essayist of the evening was Dr. D. G. Preston, of Lewisburg. Subject: "Rocky Mountain Spotted Fever, Eastern Type." Discussion by Drs. Lanham and Ferrell. Clinical case report by Dr. A. G. Lanham.

New members received into the society were Dr. A. C. Damron, Dr. Floyd H. Randall and Dr. O. P. Edds.

Norman R. Price, *Secretary*.

KANAWHA COUNTY

Dr. John W. Moore, Charleston, was elected President of the Kanawha Medical Society at the annual meeting at the Danial Boone Hotel on December 12. Other officers elected were Dr. O. H. Bobbitt, vice-president, and Dr. Andrew E. Amick, secretary-treasurer. Dr. W. W. Point was elected for the three year term as censor.

Two case reports on Amebic Dysentery were presented by Dr. R. A. Ireland, together with a short review of the clinical characteristics of this disease. Dr. Philip Jaisohn discussed the pathology and laboratory diagnosis.

A report on the recent diphtheria immunization campaign carried on by the Society under the direction of the City Health department was made by Dr. Hugh Robins, City Health Commissioner, and Dr. Leo H. Mynes, school physician.

Installation of officers will be held at the January meeting which will be a dinner meeting at the Daniel Boone Hotel on January 9, 1934.

M. F. Petersen, *Secretary*.

MERCER COUNTY

Meeting of the Mercer County Medical Society was held on November 23, 1933 in the directors' room of the Municipal building, Bluefield. There were 20 members and two visitors present.

The applictaion of Dr. O. G. King, Bluefield was voted on and accepted. The application of Dr.

J. S. Ayers of McComas was received and tabled for the usual 30 days.

The president appointed Dr. Lee Harris and Dr. S. J. Kell to audit the treasurer's books and report at the next meeting.

Dr. W. D. Fitzhugh of McComas, reported a very interesting case, "Luetic Hemiplegia with Apparently a Clinical Recovery." This case was very ably worked up and presented in a very lucid and concise manner.

Dr. F. N. Andrews reported three cases of neurosyphilis which he is treating.

We then had a paper, "Protein Fever Therapy in the Treatment of Neuro-Syphilis", which was read by Dr. O. G. King, for Dr. A. H. Hoge, who was called out of town. The next paper was read by Dr. C. T. St. Clair, "Otitis Media, Acute and Chronic."

These papers and cases were unusual and very instructive. They were freely discussed and questions asked by the majority of members present. This was one of the most interesting meetings of the year.

The president, Dr. C. J. Reynolds, gave a short talk, expressing his appreciation to the members for their coöperation and help during his tenure of office.

After adjournment we were invited to Dr. Reynold's home for a Dutch luncheon. It was largely attended and thoroughly enjoyed and appreciated.

R. R. STUART, *Secretary*.

CABELL COUNTY

Dr. T. W. Moore, Huntington, was the essayist at the December 14 meeting of the Cabell County Medical Society which was held at the Hotel Pritchard. His subject was "High Points in 36 Years Practice of Rhinology." This was a most interesting and enlightening presentation and was followed by general discussion.

A number of business matters were also disposed of by the Society at this meeting.

W. W. STRANGE, *Secretary*.

NEWS ITEMS OMITTED

Because of the publication of the annual directory of members in this issue of the JOURNAL, it was necessary to omit a number of news items. The Auxiliary notes and several county society reports were left out because of lack of space. These will be published in the February JOURNAL.

MICROSCOPE STOLEN

Dr. Richard Hamilton of St. Marys has written the JOURNAL that a Seitz microscope was stolen from his office between October 31 and November 25, 1933. The loss was not discovered until the latter date and from the dust imprint on the shelf, the instrument had apparently been gone several days when the discovery was made. Nothing else was taken.

It is quite probable that an effort may later be made to dispose of the microscope to some member of the medical profession. Should any member be approached with such an offer, he is urged to secure as much information as possible from the vendor and to communicate with Dr. Hamilton at once.

RADIOSENSITIVITY OF TUMORS

Stewart, Fred W.: From the Pathological Laboratory, Memorial Hospital, New York, Archives of Surgery, December, 1933.

Stewart has written an eighty-five page monograph covering in detail the reaction of practically all of the tumors of the body to radiation which every surgeon should read and digest. It is useless to attempt to abstract this article. Those interested in the control of cancer have long appreciated the outstanding work being done at the Memorial Hospital on the radiosensitivity of tumors and any physician before advising a patient to submit to treatment should read this article by Dr. Stewart.

E. B. H.

HISTORY OF SYPHILIS

The History and Epidemiology of Syphilis by: William Allen Pusey, A. M., M. D., Ll. D.

Here is a book that should be in the library of every medical student and physician. It is a condensed, concise, and readable group of lectures by an authority on the subject of syphilis viewed especially from its historical and epidemiologic aspect. Profusely illustrated and attractively bound this book sells for the reasonable price of two dollars. A disease that effects one in every twenty persons and crops up 871,000 strong each year deserves to be read about and taken a little more seriously by the medical profession at large. It is the duty of every physician to know something about the epidemiology of syphilis, if not its interesting history and this little book gives both. Publishers are Charles C. Thomas Co., Springfield, Illinois.

R. O. H.

The West Virginia Medical Journal

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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INFECTIONS OF THE BLOOD STREAM*

By R. M. WYLIE, M. D.
Huntington, W. Va.

THE entrance of pathogenic organisms into the blood stream is a fairly common phenomenon in bacterial disease. The nature of the circulatory system with its vast capillary bed and the ramifications of the lymphatic vessels with their rather sluggish current afford abundant opportunity for disease organisms once admitted to the circulation to invade any portion of the body and its extra-vascular tissues. The actions of these bacteria and their toxins may so injure the delicate endothelial structures as to produce thrombosis, phlebitis and embolism, or set up metastatic processes.

Such invasions of the blood stream are an integral part of the disease mechanism in such infections as syphilis, malaria, typhoid, tuberculosis, acute rheumatic fever and other conditions, and have long been recognized. While many of the pathogenic bacteria have at times been cultivated from the blood, time will not permit us to consider infections other than those resulting from a few of the more common pyogenic organisms.

The terminology, says Stevens[1] has been constantly changing in an effort to find some common terms descriptive of the modes of bacterial invasion and clinical types of infection. "Septicemia", he says, is at present the term of choice, to indicate those infections where invasion of the blood stream occurs, while "sepsis" is confined to a few special conditions as "puerperal sepsis" or "oral sepsis". "Toxemia" is an intoxication due to toxins resulting from the invasion of certain bacteria, such as diphtheria and tetanus. When such toxins are injected into animals, antibodies are readily formed and immune sera thus produced. In "septicemia" however, the intoxication is the result of bacterial products which apparently do not stimulate antibody formation. "Pyemia" was formerly used to indicate a general blood stream infection followed by development of multiple secondary foci, a condition now described as "sepitcemia with metastatic abscesses". The term "bacteremia" is used to denote temporary or transient invasion of the blood stream by bacteria and also those diseases where such an invasion is recognized as a feature of the disease, as in pneumonia and typhoid fever, though here the bacteremia may not be a transient affair. "Cryptogenic septicemia" is used to describe those cases of blood stream

*Read before the W. Va. State Medical Association, Charleston, May 23, 1933.

infection without a known focus from which the bacteria originate.

Pathological Anatomy: The mere presence of pathogenic and particularly pyogenic organisms in the blood stream would apparently render every organ of the body susceptible to their effects. However, certain structures either because of the nature of their blood supply, or because of possible sensitiveness to bacteria and bacterial toxins are most often affected.

The lungs seldom escape entirely in septicemia, and broncho-pneumonia, infarction and abscesses are all too common sequelæ. In the heart, there may result a pericarditis, myocarditis or endocarditis. The latter is a rather frequent aftermath of the septicemia. It may be either a primary lesion of the valves or superimposed upon an old rheumatic lesion. Streptococcus viridans attacks only those valves previously injured, but the hemolytic streptococcus, staphlococcus, gonococcus and pneumococcus may attack valves previously uninjured. In the order of frequency we find first the mitral, then the aortic, tricuspid and pulmonic. The pneumococcus will attack the aortic more often than the mitral, and the gonococcus often the valves of the right heart as well as the aortic. Any valvular lesion by the latter organism means a very serious prognosis, and though a few cases of recovery have been recently reported, as a rule they have a fatal termination. Embolism of course may result from the dislodgment of fragments of the vegetations from the damaged valves.

The spleen, liver and gall bladder are frequently invaded. The kidneys may show involvement of the tubules, glomeruli and interstitial tissues, and para-renal abscesses are not uncommon. Peritonitis is common in cases where intra-abdominal infections constitute the foci for invasion of the blood stream. Suppurative arthritis, osteomyelitis, periostitis and tenosynovitis may all result from septicemia.

The meninges may be involved especially after infection by the pneumococcus, streptococcus, staphlococcus or meningococcus. Meningitis may follow a septicemia, or be secondary to a thrombosis of a sinus, especially the lateral, resulting from an otitis media or a mastoid infection.

General Clinical Considerations: Surgical operations, local infections, abortions, childbirth, skin injuries, infected wounds, and some infectious diseases may result in septicemia. Ordinarily the focus from which the bacteria originate is quite evident, but all too frequently this site is only too well concealed from the examining physician. It should be remembered too that the focus does not necessarily discharge bacteria constantly into the blood stream, but often intermittently. The bacteria free stages of S. viridans infections have long been recognized. In many cases after the first shower of bacteria enter the blood stream, they may lie dormant in bones, muscles or viscera before secondary abscesses form, and during this period the blood cultures may be sterile.

The clinical signs of those cases of septicemic infection which present a sudden onset are usually a chill, followed by high fever, rapid pulse and severe prostration. There may be nausea, vomiting and delirium. The cases with a more gradual onset are apt to be characterized by headache, malaise, anorexia, chilliness and moderate fever. From this time on the course is modified by the virulence of the invading organism, the resistance of the host and many other factors. Some, especially those due to a virulent streptococcus, may result in death in a few days. A very slight cutaneous lesion, such as a blister on the foot or a slight puncture wound of the hand, may quickly show a localized edema and cellulitis, a rapidly spreading lymphangitis, then severe intoxication and death.

A less fulminating type of infection may run a course of several weeks, with irregular temperature curve and frequent chills, followed by profuse sweats. Recovery will take place if metastatic foci develop and can be drained by surgical intervention. Still others show a disposition to develop into chronic infections which may continue over a course of months. In these the fever is usually not

so high, the intoxication less severe, and there are frequent periods of several weeks with bacteria free blood stream and negative cultures.

During the course of a septicemia, various skin lesions may be noted. Erythemata are quite common in streptococcus and staphlococcus infections. These may closely resemble the rash of scarlet fever and be followed by marked desquamation. Petechial hemorrhages in the skin, mucous membranes and conjunctivæ are frequently seen. Purpura, bullous lesions, macular and papular rashes, and pustules may occur.

The pulse is usually rapid unless the infection is due to the colon or typhoid group, the heart may be dilated and functional murmurs present at apex and base. The murmurs must be distinguished from the organic murmurs due to an endocarditis, and when petechiæ or embolism occur, the latter lesion must be considered. Pericarditis, with or without effusion, is not uncommon, and infarction of the heart muscle may take place.

The respiration is rapid, and cough, purulent or blood-stained sputum, cyanosis and pleuritic pain indicate some pulmonary complication. The more common being pleurisy, purulent pleural effusion, abscesses, bronchopneumonia, embolism of pulmonary vessels and infarction. It is to be remembered that subdiaphragmatic and pararenal abscesses may give symptoms similar to those due to lesions in the lung bases.

The spleen if often enlarged and pain along the left costal margin and a friction rub in this area may indicate an infarction. A large tender liver may result from hepatic abscesses, when jaundice may or may not be present.

Generalized or localized peritonitis and infection of almost any portion of the gastrointestinal tract may be associated with septicemia. It is said that mediastinal infections subsequent to perforation of the esophagus usually terminate in septicemia. Some degree of involvement of the urinary system is almost always present. The frequent occurence of blood stream infections after labor, abortions and uterine operations needs only to be mentioned. Infections with colon bacillus, meningococcus and staphlococcus are often marked by signs of disturbance of the central nervous system. Extreme apathy and coma may follow, but signs of meningeal irritation may occur without meningitis.

The effect upon the blood varies somewhat with the existing conditions. The leucocyte count averages between 20,000 and 40,000 cells, with an absolute increase in the polymorphonuclear cells. However in subacute cases and infections with organisms of low virulence the picture may be quite different. In cases due to S. viridans the count may be but slightly increased, as may be true of B. coli, while in severe fulminating infections a subnormal count may result. Toxic injury of the bone marrow may result in marked leucopenia or neutropenia.

Diagnosis: The diagnosis in most cases must be determined finally by the blood culture. Time will not permit any detailed discussion of the technique of this most important procedure, but mention should be made of at least two important points: first, that while a shorter time may suffice, a culture showing no growth should not be discarded until after three to four weeks of incubation; and secondly, that in some cases very careful anaerobic cultures should be made.

In making a diagnosis of blood stream infection, the onset and course of the infection, the occurrence of a chill, the presence of some wound or local infection preceding the major symptoms, the irregular septic type of fever, the presence of metastatic processes, petechial hemorrhages, purpuric rashes, emboli and splenic enlargement, as well as the blood count and blood culture must all be considered.

Miliary tuberculosis, typhoid fever, malaria, Malta fever, meningitis, acute rheumatic fever, and some of the exanthemata must be ruled out in the differential diagnosis.

Stevens' thinks about 60% of blood stream infections are caused by various types of streptococcus, the hemolyticus, viridans and

putridus comprising the three chief groups. The former is the most common, occurring in about 75% of these cases and is closely related to the strains causing scarlet fever and erysipelas. Viridans is the organism found in subacute bacterial endocarditis, and the putridus is an anaerobic strain frequently responsible for puerperal infections. The incidence of staphlococcus infections is much smaller than that of the streptococcus, but the mortality is decidedly higher, being placed at from 60% to 70%. The aureus strain is the most frequent invader, accounting for some 90% of these infections. Cutaneous infections in the form of abscesses, furuncles and carbuncles, probably constitute the most common origins, as the staphlococcus is a saprophytic inhabitant of the skin, and its entrance to the blood stream is often through the lymphatics. However this type of septicemia may arise from almost any of the anatomical structures. The nature of the original focus and its resulting complications is important in the prognosis. Satisfactory surgical intervention is always favorable. Endocarditis or meningitis usually mean a fatal termination. The septicemia resulting from an osteomyelitis is said to offer the best prognosis of all.

Bourgeois and Porin[2] describe an interesting pseudo-rheumatismal form of staphlococcus septicemia. In primary forms without apparent localization, they think diagnosis next to impossible from the clinical symptoms. Some cases are associated with rheumatoid syndromes, including arthralgia, myalgia, or subacute polyarthritides not progressing to the suppurative stage. The pain is intense and localized sometimes in the joints, but more often in the adjacent musculature. A slight reddish erythema sometimes arouses suspicion of a deep lesion, but intervention in such cases reveals no collection of pus in bones or muscles. Left to themselves these rheumatoid phenomena subside spontaneously in a few days. Improvement sometimes follows incision in spite of the absence of pus. Culture of the serum obtained will usually show the staphlococcus, as will the blood culture.

Treatment: A fair evaluation of the effectiveness of various forms of treatment for septicemia is indeed a difficult matter. In the first place few physicians have the opportunity to treat enough of these cases at any one time to afford adequate controls, and without controls, no really worth while conclusions can be drawn.

The recovery of any given case of septicemia treated without control does not necessarily mean that the therapy used is to be accredited with the cure. Lemierre[3] believes that most cases of streptococcus and staphlococcus infections reported as cured by various treatments were in all probability benign cases from the start, and would most likely have ended in spontaneous cure even without treatment. Most writers however are not quite so optimistic as he, and certainly every available means of treatment should be considered.

The various forms of therapy may be discussed under (a) general measures, and (b) specific measures. The first may be considered to include rest, fresh air, liquid and light diet for acute cases, fuller diet for chronic cases. If there is no cardiac embarrassment, large quantities of water are indicated and glucose and saline infections as supportive measures. In this connection the method of Hendon[4] is very interesting. The process which he calls "venoclysis" consists in the very slow injection of physiological or therapeutic solutions through a canula fixed in the vein. He finds it possible through this continuous method to inject from four to five liters of fluid in twenty four hours. He reports the continuous administration of fluids for periods as long as sixteen to twenty one days, and has claimed this constant washing out of the blood stream to be very beneficial in septicemias and toxemias.

Next to these general supportive measures, the eradication of all foci of infection which might possibly serve as a source for the infectious agent is of the utmost importance. It probably is not only the most direct attack one can make against the septicemia, but is also about the most important prophylactic measure we possess.

Blood transfusion has been found to be the chief staff upon which most physicians rely. In many cases it has undoubtedly been a life saving procedure. Some feel that it is indicated chiefly in those cases showing a considerable degree of secondary anemia, or where there is a marked hemolysis. Dogliotti[5] advises them chiefly as auxiliary treatment, to be supplemented by other measures. He advocates giving the blood only in small amounts of 200 cc. to 300 cc., and repeating the injection every 12, 24, or 48 hours. Where there is any cardiac weakness he advises the withdrawal of a volume of blood equal to that transfused. He also believes the efficacy of the procedure is increased by the administration of large amounts of saline by vein or under the skin, with the purpose of increasing the volume of circulating fluid, stimulating the metabolism, and removing the toxic and septic products from the blood stream. The status of the immuno-transfusion as a therapeutic agent of worth is difficult to decide from the published reports. Theoretically if a transfusion is to act through increasing the bactericidal or bacteristatic action of the blood, the previous immunizing of the donor with the specific organism recovered from the individual with septicemia, might seem a worth while measure. Some have reported good results from such a procedure in chronic cases. In any case transfusion should be supplemented by surgical measures to establish drainage of all possible foci, as it has little or no effect upon encapsulated pus or progressing phlegmons.

Hooker[6] believes the best results are obtained by first giving a transfusion of suitable blood, and later one of immune blood for both streptococcus and staphlococcus. Horder[7] however thinks whatever beneficial results to be obtained from immuno-transfusion are due to non-specific action, rather than to increased bactericidal powers of the blood.

Vaccines seem to have little therapeutic value in most acute infections, but the gonococcus and meningococcus infections of the blood stream may be exceptions since numerous reports of recovery have been published following this treatment when other measures have failed.

Anti-streptococcal serum is highly advocated by some, but should be given in the early stages of the infection according to Wilkie[8]. He looks with skepticism upon both vaccine and shock therapy, but believes the former has a definite value when used for preliminary and prophylactic immunization in cases where operation may lead to a blood infection. He advocates the use of Bier's passive congestion in preventing and limiting blood infections and relieving pain the common streptococcal infections of the hands and fingers. While scarletinal anti-streptococcus serum is of very definite value during the initial stages of this disease, it has no effect upon complications which have developed before its use. Stevens[1] believes that its use intraspinally when streptococcus scarletinæ infection of the meninges has occurred constitutes the one exception to this rule.

Non-specific protein therapy has as yet to prove its value.

Bacteriophage is another form of therapy which has been attracting much attention of recent months. This solution may be used subcutaneously, intravenously, and locally at the site of the infection. The conflicting reports on its efficacy probably result from the use of more or less active and specific preparations. d'Herelle and Rakieten have recently reported strains of non-hemolytic staphlococci which were resistant to all phages so far used against them. Other strains required repeated contacts before complete lysis was effected. McKinley has reported seven strains of the hemolytic type resistant to supposed polyvalent bacteriophage. Dutton[9] found the bacteriophage very effective in several cases of hemolytic streptococcal septicemia, and used no other form of treatment.

MacNeal and Frisbie[10] report considerable advantage in the use of bacteriophage for localized and superficial staphlococcus infections. In boils and carbuncles they advise the repeated injections of the solution into the lymph spaces about the focus through mul-

tiple punctures with a very fine needle, and its use as a wet dressing. They warn however that the presence of blood, serum, purulent exudate, the chemical reaction of the media, the presence of antiseptics, and the temperature are all factors modifying the activity of the solution. For intravenous injection they insist upon the use of a special filtrate, prepared in a culture medium without protein, and containing asparagin as a source of nitrogen. This preparation is found to be much less toxic than a filtrate of broth culture, and is best used without any other intravenous medication. Fifteen patients with staphlococcus septicemia treated with this preparation of bacteriophage resulted in seven recoveries. It was their previous experience that all such cases with two positive blood cultures had resulted fatally under other forms of treatment. While only a small series, it was felt that here was a remedial agent of very definite value, and while staphlococcus blood stream infections were extremely grave they were not necessarily hopeless conditions.

The chemotherapy of septicemia has at times included most of the germicidal drugs and dyes at our disposal. It seems an attractive idea to attempt to introduce into the blood stream an agent which will produce sterilization. Mercurochrome has been one of the most popular, and has its sincere advocates and equally sincere opponents. Young[11] and his co-workers have reported many cases of septicemia treated by intravenous administration of this drug, with very beneficial effects. Wheeler[12] advocates its use in streptococcus infections with no accessible primary focus, when other measures have proved unsuccessful. Jarrell [13] reports its use successfully in a staphlococcus infection following a carbuncle. Piper[14] had remarkable results in a staphlococcus meningitis infection, following the intravenous injection of mercurochrome and spinal drainage twenty four hours later. He failed however in the treatment of hemolytic streptococcus cases with this drug. Adams [15] and Kordenat[16] also report failures in treating this type of infection. Others point out that severe reactions, such as hard chills, high fever, vomiting, diarrhea, and often nephritis follow its use.

Gentian violet and acriflavine have their advocates. Harry, Burke and Rodier who have studied the matter, point out that the conflicting reports in the use of dyes intravenously is partially due to carelessness in the preparation. The pH of these solutions varies with the solvent used, and probably is accountable for some of the unfavorable results.

Moos[17] is much less radical and reports good results in thirteen cases of staphlococcus sepsis from the rectal injection of 25 to 100 cc. of 5% colloidal silver solutions.

Of recent months metaphen has received very favorable comments. As an antiseptic it is more powerful than bichloride of mercury, mercurochrome or phenol, and in general is less toxic than other drugs of this type. Keeler[18] believes its action may be through stimulation of antibody formation in the reticulo-endothelial system. Bernstine[19] used metaphen in treating sixteen cases of bloodstream infection with very beneficial effects. He reports a low toxicity and no untoward effects. He thinks it of especial value in puerperal septicemias. The drug is a synthesized mercury derivative of cresol and not only has a very low affinity for blood protein but a very active effect upon both cocci and spore bearing bacilli. The usual dose is 10 cc. of a 1:1000 solution given daily, but this may be increased if indicated to 20 cc. or 30 cc. He found that the injection was usually followed by a drop in temperature, pulse rate, total leucocyte and polymorphonuclear count.

Those cases which show a marked depression of bone marrow activity, with extreme leucopenia or neutropenia, represent a very grave form of septicemia. Jackson, Parker and Taylor[20], of the Harvard Medical School, have reported a series of 14 such cases with 11 recoveries. These were treated with Pentnucleotide, formerly known as Nucleotide K-96. Their remarkable success predicts a good future for this form of therapy in such cases.

Conclusion: The whole subject of septicemia still requires diligent study both from

the clinical and laboratory viewpoint by competent observers. The prognosis in such infections depends upon the type and virulence of the invading organism, the accessibility of the lesion serving as a portal of entry, the occurrence and location of metastatic foci, and the resistive powers of the patient.

Treatment consists first in the immediate surgical eradication of all sources of bacterial infection, and the application of general supportive measures. So far as specific treatment is of value, vaccines are still in the experimental stage, but may offer some aid in certain types of chronic infection. The bacteriophage we believe offers considerable promise as soon as active and specific phages and suitable intravenous technique is perfected. Small, frequently repeated blood transfusions are the chief reliance of many physicians at present. The immuno-transfusion has yet to establish its value. The anti-streptococcal serum has been used quite successfully by some and merits further trial by experienced observers. Of all the drugs which have been used intravenously, metaphen would seem to be the one of choice because of its low toxicity, the marked absence of severe reactions, and its high antiseptic value.

In general it would appear advisable to institute vigorous therapeutic measures as soon as a systemic infection is suspected, and not wait until the patient is moribund.

Discussion

Dr. W. M. Sheppe, Wheeling: As Dr. Wylie has stated, no one individual deals with large numbers of blood stream infections. This makes the assembling of data bearing on etiology, pathology or treatment, a rather difficult matter. We are greatly inclined to depend upon our clinical impressions, especially in regard to therapy. I feel that infection of the blood stream may be eradicated by several different types of treatment. The difficulty arises in eliminating the original focus, which may be continually feeding the bacteria into the circulation. If an infected thrombus fills the pelvic veins following an endometritis or a lateral sinus following mastoidectomy, elimination of the bacteria from the blood can be of only temporary value.

I think that bacteria are present in the blood much more frequently than we realize. The method that Cecil has devised for culturing streptococci from the blood of arthritics gives rather startling results. It is indeed surprising to find that we can recover bacteria from an ambulant patient who is not acutely ill. The volume of blood removed for the purpose of making blood cultures should be generous and the cultures should not be discarded too hastily, certainly not under two weeks.

I think the method of Hendon (continuous venocylsis) is of real value and probably should be used more frequently. The effect of the injection of chemicals may not involve any process of sterilization of the blood stream. I think more likely, it brings about a colloidal change with a resulting increase in resistance. It is impossible to believe that the amount of mercurochrome or metaphen injected could possibly sterilize six liters of blood. Blood transfusions may have precisely the same effect.

I agree with Dr. Wiley that metaphen is probbaly our best type of chemotherapy at present available.

Dr. R. J. Condry, Elkins: Dr. Wylie has given us a comprehensive survey of this very important subject and I have but one point to emphasize. This is Dr. Wylie's mention of the streptococcus viridans in the production of sub-acute bacterial endocarditis, particularly where the heart was previously damaged by rheumatic infection. In various series reported of rheumatic carditis the incidence of sub-acute endocarditis has been between two and four percent. However, congenital cardio vascular defects are particularly susceptible to streptococcal viridans infection. The actual incidence has been estimated at 5% or a little more than in hearts previously damaged by rheumatism. Of the congenital defects Lewis & Grant have shown that congenital bicuspid aortic valves lend themselves quite readily to subsequent streptococcal invasion.

I wish to stress also Dr. Wylie's point regarding not being satisfied with three or four blood cultures when looking for blood stream invasion by bacteria.

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PHRENICOTOMY IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

By RUSSELL B. BAILEY, M. D., F. A. C. S.
Wheeling, W. Va.

IN 1927 the first phrenic exeresis was done at the West Virginia State Tuberculosis Sanitarium at Hopemont. Dr. J. G. Pettit, who was then superintendent, welcomed and encouraged this new development in the treatment of pulmonary tuberculosis. His successor, Dr. George F. Evans, continued to encourage the work, until we now have a large series of cases. The analysis shows without any doubt that certain patients who were doomed to early death or to a lifetime in the sanitarium have been reclaimed and given back to society as useful citizens. At first it was difficult to convince the patients of the value of unilateral paralysis of the diaphragm. The first group of cases were, of necessity, the far-advanced, chronic invalids, most of them having been residents of the sanitarium for a period of three or more years. It is amongst this group that some of our most brilliant results were obtained. All of the cases I have chosen to analyze fall into this group. Bed rest and all of the other ordinary sanitarium therapeutic measures, including pneumothorax, had been tried, yet these patients remained chronic invalids.

Experience has shown that pulmonary tuberculosis with cavitation is an extremely serious lesion, the average life expectancy being about eighteen months. Most of our cases had passed this period and were really living on borrowed time, being hopelessly confined, and many were reconciled to a life of complete invalidism. Before presenting our results it would be fitting to discuss briefly some of the studies made by other observers on the life expectancy of patients with cavitation.

Barnes and Barnes[1] studied the fate of 1,454 patients with cavities and found a mortality rate of 80% within one year and 90% within five years, with an average life expectancy of 15.8 months. Another group of 626 cases, confined to laborers and followed over a period of sixteen years by Sprungmann[2], revealed a total mortality rate of 78.2% with a death rate of 61.7% during the first two years. Of the remaining 38.3% only 4.1% were able to return to work, the others being totally or partially disabled.

From these and other similar studies it is evident that only a relatively small percentage of patients with cavitation ever become useful members of society.

When a cavity is found during the course of an examination for tuberculosis, the lesion is usually classified as moderately or far-advanced tuberculosis, depending somewhat upon the extensiveness of the infiltration. A cavity is the end result of a caseous or pneumonic process, produced by the reaction to the tubercle bacillus, the size of the cavity depending upon the degree and extensiveness of the destructive process. There are other

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factors, such as the patient's resistance, and the early institution of proper therapy, which have a tremendous influence on the rapidity and course of development. Repeated serial radiographic studies have furnished valuable information on the various changes which a cavity may undergo. Without going into a long discussion as to the various divisions which have been suggested regarding cavities, for this study we will classify them as small, thin-walled; large, thick-walled; "moth-eaten" or small multiple cavities.

Some observers, (Fales and Beaudet)[3] have made the observation that as many as 42% of cavities will close with proper rest, yet in their analysis 86% were small cavities. Seventy percent of the large cavities and 67% of multiple cavities healed within a period of eighteen months. I believe this figure is high, and Dr. Evans at Hopemont is of the opinion that not more than 25% of the cases with cavities at our state institution ever close without some mechanical aid other than rest. If we eliminate the small cavities and the thin-walled cavities, only a very small percentage ever close. I am of the opinion, however, that rest has a tremendous influence on the healing of cavities and that one should not be too enthusiastic in advising a radical procedure without first carefully observing and studying the individual case. The more radical procedures, such as pneumothorax, phrenicotomy, thoracoplasty and its allied procedures should be reserved for the more resistant cases and cases which, in the medical attendant's opinion, will not respond promptly to the sanitarium's ordinary regime.

During the past five years I have performed over two hundred operations on the phrenic nerve, all under local anesthesia, without any serious complications. Three cases were complicated by a Horner's syndrome; one is permanent and the other two were temporary. At the West Virginia State Tuberculosis Sanitarium we now have a series of 149 cases. One hundred and five were operated upon during the period from 1927 to 1931. Of that group 19 of the patients are dead, 28 are either still in the sanitarium or were discharged home unimproved and the remaining 58 were discharged from the sanitarium improved to the point where they could carry on their cure with reasonable safety.

The series of cases I wish to consider are a group of 59, which were operated upon from two to five years ago. All of these cases were far-advanced and presented from single to multiple cavitation. The average time in the sanitarium before phrenic section was seventeen months. There were 45 cases in which the cavity was more than 2½ cm. in diameter, 6 cases with a cavity less than 2½ cm., while 9 cases presented multiple or honey-combed cavities. The cavities were located as follows: Right apex, 14; left apex, 26; right middle, 9; right lower, 4; left lower, 6. In 27 cases we classified the cavity as thin-walled; in 24 the cavity wall was thick, while in 8 there was a moth-eaten or irregular appearance. The type of tuberculosis was classified as exudative, fibrous exudative and fibrous. Of the exudative there were 22 cases, fibrous exudative and fibrous 34 cases. The average amount of sputum before operation was 3½ ounces, with 82% positive for the tubercle bacillus. Following operation the sputum dropped to an average of 1.5 ounces with only 64% positive for the tubercle bacillus. The highest rise of the diaphragm was 7.5 cm.; in 11 there was no elevation, the average elevation being 2.8 cm. The 59 cavities were carefully measured, and it was found that 16 had completely closed, while 23 showed from moderate to great improvement; 20 were not influenced at all. Three of the 20 had subsequent extrapleural thoracoplasty with closure.

In analyzing the end results, from two to five years after operation, we find that in 16 cases the disease is arrested and the patients are back in society. In 20 cases there is marked improvement. Twelve patients are dead; 6 were unimproved by the operation, and 11 of the group are still curing in the sanitarium.

The fact that we were able to restore 27% of a hopeless group of patients to society with

a simple surgical procedure is rather remarkable. To return 35% of this group to their homes and friends, even though they were not completely arrested, is certainly worth while. To have relieved the state of the care of 62% of this group is a saving, when one considers that the cost of maintaining a patient at Hopemont is about $700 per annum.

I wish to express my appreciation to Dr. George F. Evans and the staff at Hopemont for their generous coöperation in this work.

Discussion

Dr. Charles E. Smith, Hopemont: It is a great pleasure to know that out of 59 cavity cases upon which Dr. Bailey did phrenectomies that 16 or 27% are again useful members of society and that 20 or 34% are definitely improved. In other words 60% of these patients are either recovered or well on the road to recovery. When one considers the mortality rate of Barnes and Barnes of cavity cases, 80% dead within one year and 90% within five years you can readily see what Dr. Bailey has accomplished with this one procedure alone in restoring back to usefulness these tuberculous patients as well as saving their lives.

We have been using phrenicotomy at Hopemont for the past six years as a sole procedure, as a supplementary procedure following artificial pneumothorax, and as a preliminary procedure to extrapleural thoracoplasty.

The indications for this procedure may be summed up as follows:

1. In those cases in which one cannot give artificial pneumothorax due to numerous adhesions and one feels reasonably certain that cavitation will not close by bed rest, postural treatments, or splints, sandbags and shot bags.

2. In those cases in which the patient cannot afford prolonged treatment necessary with artificial pneumothorax or bed rest and which can be treated successfully with phrenicotomy.

3. In those cases in which the disease in the contralateral lung is too extensive to permit risking an artificial pneumothorax. In spite of the fact that artificial pneumothorax can be controlled and is always the method of choice, yet there are certain complications attendant to this procedure which sometimes make one fearful of adopting it and there are practically no dangerous complications attendant to phrenectomy.

4. In cases requiring thoracoplasty, as a preliminary procedure as a test for the good lung, and make more complete the collapse when the thoracoplasty is performed.

5. In cases having artificial pneumothorax in which one does not feel safe in permitting the lung to entirely reexpand.

In choosing a case for phrenicotomy as an independent procedure, there are several factors which must be considered.

One factor is the economic status of the patient. Can he afford the prolonged treatment required in bed rest? Can he afford the prolonged treatment necessary with artificial pneumothorax?

Another factor to be considered is, can you prevent progress of the disease or effect closure of his cavity by this procedure alone. If there is doubt about this procedure alone doing the work, it must be remembered that if it does not, then from a surgical standpoint you still have three procedures to fall back upon, artificial pneumothorax, with or without extrapleural pneumolysis by the Jacobeus-Unverricht method, or thoracoplasty, or apicolysis, the latter, in my opinion, has not been as successful as anticipated.

Another factor to be considered is the amount and type of disease in the good lung. Extensive soft mottling over one-third of the total amount of lung tissue in this lung, particularly if distributed below the second rib and the fifth vertebral spine in this good lung makes me hesitate about sending my case to the surgeon for phrenicotomy. If the mottling is distributed above these landmarks I am more prone to take a chance. Of course I always feel I can take greater chances in a phrenicotomy with a diseased contralateral lung than in artificial pneumothorax for reasons previously mentioned.

Now in deciding the result of this procedure as to closure of cavity. Paralysis of the diaphragm affects the entire lung, and not just the base and lower lobe as formerly believed. The diaphragm, as we have had particularly brought home to us in two cases with bilateral phrenicotomy, is an important aid in emptying the cavities during coughing. Anywhere from 10 to 30% of the total capacity of the lung upon which the diaphragm is paralyzed is impaired. Hence with a good rise in the diaphragm following phrenicotomy, the entire lung is affected as to collapse. Consequently the position of the cavity is not nearly so important a factor as was formerly believed. In going through the files of 64

patients with cavitations upon whom phrenicotomies have been performed, 22 cases had cavities in the right apex, 19 in the left apex, 4 in the right middle, 4 in the right lower, and 6 in the left lower. Two cases had cavities in the right apex and right lower, 3 in the right apex and middle lobe, and 4 in the left apex and left lower lobes.

However, the size of the cavity and the type of the wall of the cavity are decidedly important factors in choosing the case for phrenicotomy. The smaller the cavity, and the thinner its wall, the more certain one is of closing it by phrenicotomy alone.

A cavity, however, located at the extreme periphery with evidence of infiltration and fibrosis about it should have phrenectomy tried first because under pressure of artificial pneumothorax the strand or strands of adhesions holding it to the chest wall ruptures, breaks open the cavity, and we have a tuberculous empyema complicating matters. Personally I always hesitate about doing artificial pneumothorax in these cases if my cavity is over a year old.

Following the phrenicotomy, I believe a rather strict bed rest regime should be insisted upon for at least two and preferably three months thereafter. This gives the relaxed lung sufficient time to heal, and delays, because of disuse the compensatory effects of the intercostal muscles. In this way we make permanent the results of the operation, as in some of our cases at Hopemont, following phrenicotomy, we have not gotten complete closure of the cavity for 18 months to two years, in others we have gotten closure within three months, and in some cases the result was almost immediate, but the majority of cases that received complete closure, got it at a later period than three months, and the rest regime was, in my opinion, a material aid in closing them.

Dr. George F. Grisinger, Beckley: I am sure that you are all satisfied that phrenicotomy is a valuable procedure in the treatment of pulmonary tuberculosis. Without a doubt compression therapy is the most valuable contribution to pulmonary tuberculosis that has been made in the present century. Phrenicotomy has a wide field of usefulness. However it cannot be classed as a compression measure in the strict sense that we classify other procedures. The fact that the diaphragm does not always rise, detracts very little from the usefulness of the operation, since functional rest to the lung is the result in either event.

No categorical list of indications and contra-indications can be given for phrenicotomy due to the factors demanding individualization in the selection of patients. I am firmly convinced that this surgical procedure is just as useful in upper as lower lobe lesions, with or without cavitation, however I believe it is the elastic, thin-walled cavity that responds most readily to the operation.

While the greatest field of usefulness of phrenicotomy is the production of functional rest in unilateral or predominantly unilateral disease it also affords to the far advanced case relief from distressing symptoms such as excessive or emetic cough, copious expectoration, etc. We are advised against the use of this operation in far advanced bilateral cases, but I am unable to see the logic of such reasoning, as practically all of these patients are doomed to a certain tuberculosis death and any procedure that offers hope of recovery or prolongation of life is certainly justified.

Dr. Bailey, (closing the discussion): In closing I will not attempt to take up any of the points that have come up for discussion. I merely want to close by adding a little pathos to it. As most of you know who have had anything to do with patients who have tuberculosis, they are all seemingly a broken group of cases,—not from a financial standpoint, but on seeing these people when they go back, they always look at you like bird dogs,—so grateful. I have in mind one boy, particularly, who had been in the sanatorium for five years. He had been the sole support of his mother when he came to the sanatorium. His mother was required to wash dishes in a restaurant for her living. He had been at death's door on several occasions from hemorrhage. In fact one time he hemorrhaged something over 100 ounces of blood, so you can imagine he was moribund several times. That patient is now well, back and supporting his mother. I see him often and he looks at me just like he would like to come and kiss my hand. These things are certainly worth while.

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A SHORT REVIEW OF CERTAIN ASPECTS OF PELLAGRA*

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THE first description of "mal de la rosa" was given by Casal of Spain in 1735. Frapolli of Italy in 1771 gave the disease its common name, Pellagra. A century passed before the two original papers were found to be dealing with the same condition. Prior to 1896, pellagra was not thought to be endemic in the western hemisphere. That year many cases were reported in Mexico and the West Indies. Since then pellagra has been found to occur endemically in Europe, Africa, India, Japan, Australia, Hawaii, Mexico, South America, Canada, and the United States.

The exact etiology of pellagra is still an unsettled question, although the classical work by Goldberger and Wheeler[2] on convicts in Mississippi has led many to believe the cause to be a diet deficiency. In their work eleven convicts were fed a diet of wheat, rice, Irish and sweet potatoes, a few green vegetables, pork fat, sugar, syrup, and flour. After five and a half to six months of this diet, six of the convicts developed convincing manifestations of the disease. In a larger number of controls not one showed any indications of pellagra.

Ordinarily pellagra is found endemically in the poorer sections of the south, the northern and western sections of the United States being relatively free from the disease. However, during periods of economic distress, the disease may reach almost epidemic proportions in sections where there is a more or less constant incidence, and many cases are reported in the northern and western states where ordinarily it is seldom seen. This increase is due, in all probability, to the lack of proper food over a period of months. Individual conditions may influence the diet in such a manner that the proper foods are omitted from the diet. Some of these may be gastric disturbances with pain, giving a false impression to the individual that solid foods are the cause of the distress; loss of teeth, or severe pyorrhea may cause loss of appetite for substantial foods for a long period of time.

In most instances the disease begins with a slight loss of strength. This may be so gradual that it may go unnoticed for several weeks. Various nervous signs may next appear, such as insomnia, headache or vertigo. Gastric pains after eating are frequently complained of in adults. A sensation of heat or burning of the mouth and throat is usually the next symptom. This may or may not be accompanied by a redness of the tongue.

After an uncertain period of some or all of the above mentioned symptoms, an eruption characteristic of pellagra occurs. In areas in which the disease is endemic the symptoms begin in the late winter gradually increasing in severity during the next two or three months. After persisting for an indefinite period there is usually a gradual decline of the symptoms with the eruption disappearing first, so that by fall the individual may have regained his normal health. In a small proportion of cases there is a gradual increase in severity of the symptoms especially in the gastro-intestinal and mental phases and if the condition is untreated or improperly treated, death may result. If proper dietary measures are not provided for, subsequent to recovery from one attack of the disease, recurrence will probably occur in half the cases.

Neuralgic pains are often met with. Left chest pain is the most common. Abdominal, especially epigastric, pain occurs not infrequently, may be so extreme and appear so well localized as to cause confusion with acute abdominal disease. This has lead to the performance of exploratory operations. A severe diarrhea so often accompanies the abdominal

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pain that this should be a lead in the diagnosis.

In about six per cent of the cases reported the mental condition of the patient becomes so unbalanced that institutional care is necessary. In some cases a delirium may develop, during which the patient may flail the bed clothing and mutter unintelligbly. This condition has been called "typhoid pellagra."

In a few instances the characteristic eruption does not appear. As the rule, however, it is the most valuable point in diagnosis. Usually the eruption will begin on the back of the hands and may simulate an acute sunburn. There is a sharply defined limiting line between the rash and the normal healthy skin. The feet, face, or neck may be affected. As the redness subsides a pigmentation is left in the skin and a parchment like appearance exists for some time. The eruption possesses other pecularities that are of aid in diagnosis; these are the striking tendency to be bilaterally symmetrical and the frequency of occurrence on certain sites. The rash may occur anywhere but it is most often seen on the backs of the hands, extensor surfaces of the feet, the forearms, neck, and face in the order named. It may occur on the elbows, knees, arms or genitalia. Seen at a distance the eruption on the backs of the hands gives a gloved appearance.

If a classical case of pellagra is once seen there will seldom be occasion to hesitate about diagnosis. Unfortunately typical cases are not in the majority. The eruption is the most important single finding and so it is important that a clear understanding of its features which with other symptoms distinguish it from other rashes. The more important of these are the sharp outline of the lesion, the pigmentation with keratosis, and the tendency to appear on the other side of the body. When the eruption is clearly outlined and bilaterally symmetrical it is in itself almost pathognomonic.

In the absence of the eruption, the diagnosis of pellagra cannot definitely be made. It is far graver to fail of diagnosis than to diagnosis milder conditions as pellagra. Do not fail to think of pellagra in conditions of "melancholia", "chronic indigestion", dysentery, "pernicious anemia", eczema and sunburn, and vague abdominal pains simulating disease of the appendix, ovary, or gallbladder.

In any disease of long duration, complications will be met, such as acute infectious processes, influenza, typhoid fever, etc., but the directly related complications are suppurative and ulcerative processes which may follow infections of the wet type of skin lesions, and "bed sores in those much emaciated".

Treatment: Preventive treatment is necessary to regulate the disease in the endemic localities of the country. The proper dietary needs should be stressed as a part of the local public health education.

The diet must include such a balance as to support growth in the young and maintenance of weight in the adult. Lean meats, yeast, vegetables, fruits, and milk contain in sufficient quantities the pellagra-preventive factor. When meats or vegetables cannot be taken, milk may be used as a curative measure as well as a preventive. At least a quart should be taken daily when it is providing the bulk of the diet. Eggs, butter, and cheese may be substituted for lean meat in the diet.

As a rule the first treatment must of necessity be a liquid diet. Solid foods should be added as soon as the patient is able to digest them. The diarrhea that often accompanies the more severe forms is not a contra-indication to a full diet.

Medication almost always fails to control the diarrhea. Morphine in large doses will not suffice. Astringent mixtures may be used in the milder cases but may do more damage than good since they have a tendency to cause anorexia. The diarrhea should be left to the action of the diet to which it will gradually respond.

The skin lesions may be washed with mild antiseptic washes to prevent infection.

The stomatitis may be relieved with a simple mouth wash.

There is no known test to determine when a cure has been effected. All manifestations of

the disease may clear up after a few weeks of proper care, but there is doubt if the patient is well. Under observation, patients have been observed to react to physical work and strain in the same manner as normal individuals.

Prognosis: Early reports showed a mortality rate of forty to seventy per cent. I do not believe this to be a true index of the seriousness of the disease, the actual mortality probably being much less. The Mississippi reports of 1927, 1928, and 1929 show a case fatality rate of 9%.

A severe diarrhea with watery evacuations is an indication of gravity as is marked nervous system involvement. The prognosis with respect to recurrence hinges entirely on the maintenance of a proper diet.

Conclusion: Pellagra is being observed in areas far outside the usual localities in which it is most commonly seen. During a long period of economic distress in which thousands of people do not have proper food over a period of many months, the disease with the severest forms may appear and, if not recognized and properly treated, will result in many fatalities from a condition that is most often relieved by proper care and good food.

CASE HISTORY NO. 1

C. C.: Diarrhea and extreme prostration.

P. H.: Childhood diseases. Typhoid fever in 1914. Pneumonia in 1919. Operated on in 1927 for appendicitis, in 1929 for gall-bladder disease, both without relief of pain in the abdomen. Has had chronic indigestion for twenty years. Placed on a diet several years ago for peptic ulcer. Two years ago after her last operation limited her diet to chocolate candy and white bread and has eaten nothing else since, although of a well-to-do family.

H. P. I.: Has had attacks of diarrhea and sore hands each winter for three years. Had diarrhea and "eczema" of hands previous to and at the time of operation for gall-bladder. The diarrhea had lasted ten days before patient was seen. Skin normally clear during the summer months. Present illness began ten days ago with ten to fifteen stools daily, normal in color, of watery consistency, and after each stool there was always severe abdominal cramping.

Physical Examination: A white female of about 40 years lying in bed. Anxious look on the face. Extreme emaciation, weight about 80 pounds. Normal height 5 feet, 3 inches.

Tongue red. Heart normal, lungs normal, abdomen tender on pressure, no rigidity, no masses felt. Abdominal reflex present. Extremities show a crusty rash on backs of hands and half of dorsal surface of forearm, feet and ankles dry and skin cracked.

Impression: Neurasthenia and colitis.

Medication: Bismuth suspension and paregoric.

Patient was seen on three succeeding days, the condition growing progressively worse. Appetite was lost completely and she refused to take any nourishment.

On returning from the fourth visit the possibility of pellagra was thought of and I returned to see the patient. The clinical picture of a classical case of pellagra was presented. A nurse was obtained and the following day dietary measures were outlined. Liquids were begun by rectal instillation of yeast, meat broths and soups. Ten days later patient began to take liquids by mouth. Strength was returning and gastric distress had disappeared. About this time signs of mental unbalance appeared and continued for two weeks. By the end of the third week of proper treatment the patient was able to sit in bed and the rash had disappeared except a brownish pigmentation that is still present.

When seen six months later she had gained twenty-five pounds. No recurrence of skin rash, abdominal pain, or mental signs. Is in better health than for years.

CASE HISTORY NO. 2

The patient, a boy aged 16, was seen at his home on the afternoon of March 6, 1932.

C. C.: Diarrhea; "bloody flux".

P. H.: Measles and mumps in infancy. No other diseases.

H. P. I.: Began five days ago with severe abdominal pain and diarrhea. Good health up to present illness.

Physical Examination: A fairly well developed male of about 15 years lying in bed complaining of severe cramping in the abdomen. Examination was interrupted to allow bowel action. This was watery with streaks of blood and mucous. No odor noted.

Head negative, heart negative, lungs negative. Abdomen extremely tender, patient would writhe with pain on least pressure. Extremities negative. Hospitalization advised for surgery. This was refused by the family. Blood count taken next day showed 5,000 leuccoytes, 72% polys.

Impression: Colitis, or acute abdomen (surgical).

Medication: Patient given morphine and bismuth.

Patient was seen daily for a month. The diarrhea was uncontrolled by morphine. Appetite lost. Typical pellagrous eruption appeared on the sixth day of treatment and recognized as such. Dietary measures were begun at once but patient grew progressively worse. Emaciation extreme and decubitus ulcers appeared in spite of careful observation and nursing. Mental faculties lost and patient was delirious last four days of life. Fever during this time was never over 99. Patient died the thirty-fifth day of the illness.

CASE HISTORY NO. 3

The patient, an Italian boy of 18, came to my office December 14.

C. C.: Sores on his arms and feet and a sore tongue.

P. H.: Obscure, did not remember of having any illness before.

H. P. I.: Eruption on the hands began a month ago and got progressively worse even though he bought from a traveling drug salesman some medicine that was guaranteed to kill the sores. His tongue was sore the first time about three days before coming to the office.

Physical Examination: A well developed male of fifteen or sixteen apparently in good health. Rest of physical examination negative except for the tongue, which was fiery red and shiny. The hands on the exterior surfaces were covered with a moist red rash which extended two-thirds of the way to the elbows. On the right arm was an ulcer about an inch and a half in diameter covered with a dry crusty scab. The eruption was bilateral and symmetrical. The extensor surfaces of both feet were considerably darker than the normal skin above.

Impression: Pellagra.

Medication: None. Diet of milk and vegetables given and rapid recovery followed. Three weeks later patient was working. All signs of the disease had disappeared.

CASE HISTORY NO. 4

The patient, a white female of about 47 years was seen one night because she was:

C. C.: Out of her head.

P. H.: Childhood diseases. Scarlet fever at age 15. Influenza and pneumonia in 1918. Has been in good health since that time and has done her own housework up to the present time.

H. P. I.: Patient has had "primrose poison" on her hands for about two weeks and had complained of weakness for the last three weeks. Had a touch of diarrhea two weeks ago but that is well now. Lost her appetite and could not eat for past three days. Has had mostly molasses and bread with a little coffee for the last five months. (Given a sedative which quieted her allowing sleep).

Physical Examination (made the following day): An underweight female lying comfortably in bed complaining of too many covers (actually only a thin blanket and sheet were on the bed). Physical examination showed no abnormalities except a slight enlargement of the heart with a soft presystolic or systolic blow. No thrill. Pulse regular. Blood pressure 96/65. Temperature 98.6. A glossy tongue that appeared normal in color. The backs of the hands were covered with a bright red and moist eruption that extended about one inch up the wrists on both sides. Itching was complained of especially at night. The feet appeared normal.

Treatment: Food was prepared especially to her liking and she was finally persuaded to eat it. She took a quart of milk daily with

veal steak at each meal. Vegetables were refused. At the end of the first week the moistness disappeared from her hands and the eruption was considerably less intense in color. By the end of the second week she said she felt well but the mental unbalance was little improved. One month afterward the eruption was gone completely and her mind was clear. She has been in good health since, but has a tendency to starve herself. The family is very coöperative and reports the patient's condition each week.

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PRACTICAL SKIN THERAPY*

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THE limited time allotted in the general medical curriculum to the diagnosis and treatment of skin diseases is usually just sufficient to confuse the student. What is it about anyway? Did not some bright wag once say that the patient never dies, never gets well, and never calls you out at night? So why worry? Such statements, however, are often false.

Skin disorders of any kind make their victims miserable. Patients come to their physicians not only for cure, but for relief and reassurance. Though one cannot guarantee cures for diseases of the skin any more than in other fields of medical effort, every physician can do a great deal for the majority of skin disorders.

There are two methods of treatment:

1—Specific treatment (removal of the cause);

2—Symptomatic (treat the most prominent symptom).

By the specific treatment, the removal of the cause of the disorder permits the body to return to normal through its natural recuperative powers. Therefore, if one has hives from eating strawberries, one must not eat strawberries; if eruptions occur from contact with horses, horses must be avoided; if edemas develop on account of contact with certain pollens in the neighborhood, one may be obliged to move to a community where these pollens do not exist. In other words, if one is hypersensitive, or allergic, he must remove the offending substances from his environment or, as is often the case, he must remove himself from theirs in order that he not suffer.

Some skin eruptions have been found to be due to focal infections such as teeth, tonsils, gall bladder, appendix and colon. The dentist may remove the teeth, the oral surgeon the tonsils, the general surgeon the appendix and gall bladder. The eruption may persist. Then an internist may begin colonic irrigations with sometimes brilliant results. Focal infections are difficult propositions.

A very common focal infection however, which may cause general eruptions, is that which occurs between the toes. This is our common friend, dermatophytosis, a fungus infection. The easiest thing about this disease is the diagnosis.

Skin conditions may be merely symptoms of internal disorders, as for instance the acnes and furunculosis of diabetes, or the intense itching often observed in early Hodgkin's disease and mycosis fungoides.

Usually, however, the majority of skin eruptions are due to local causes, like the impetigoes caused by staphylococcus and streptococcus infections, the great ringworn group caused by many related fungi, irritants of chemical nature with which one comes in con-

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tact in the various industries and occupations, or by animal parasites such as scabies and pediculosis.

The treatment is apparent: remove the cause. In some cases this is not difficult. This is usually true of the animal parasites, the impetigoes, and some of the fungus infections. In other cases the causes may be readily determined, but their removal may be fraught with considerable difficulty, not only therapeutic but economic. For example, simple as dermatophytosis of the feet may appear, it is sometimes difficult to cure, while for a baker who is sensitive to flour, or a hostler who is sensitive to horse hair, the surrender of an occupation is a serious proposition.

Then there is that greater group of skin diseases labelled *Etiology Unknown*, including the mild and harmless pityriasis rosea, the persistent but usually benign psoriasis, the various eczemas which are often a misery to both patient and physician, and those frequently fatal diseases—pemphigus foliaceous and mycosis fungoides. It is no wonder that when confronted with the problem of knowing the cause in order to treat a disease the physician is placed in a dilemma. He must resort to the symptomatic treatment.

The symptomatic treatment of skin diseases is based upon the simple principle that our tissues react in a very definite way to injury. We know that in acute inflammations there is often an over reaction of the tissues. This results in a slowing up of the resolving factors, accentuating and prolonging the harm to the host. In chronic inflammations the reverse is true, the defensive reactions of the tissues are insufficient and need stirring up.

The fundamental principles governing our therapeutic procedure involve therefore the following measures:

1. Eliminate the offending irritant, whether it be the result of infections, external chemicals, or faults of metabolism.

2. Diminish the tissue reaction in acute inflammations (sedative treatment).

3. Increase the tissue reaction in chronic inflammations (stimulant treatment).

In an attempt to conform to these principles the following pharmacopoeia is presented as being simple, logical, and effective:

For simple acute inflammations with erythema, but with no blister formations, no breaks in the skin, and no oozing, a drying, astringent, non-irritant, soothing powder is often all that is required. Zinc oxide and talc, mixed in equal quantities and applied two or three times a day as a dusting powder is quite satisfactory.

Rx—(dusting powder)
Zinc oxide
Talc aa....15.

If some external irritant is present it is well to remove it with a 1% solution of salicylic acid in dilute alcohol before applying the powder.

Rx—(salicylic-alcohol solution)
Salicylic acid .....1.
Alcohol (70%) ...100.

The skin surface is cleansed with a pledget of cotton or gauze soaked with the solution. When dry the powder is applied.

When the skin is broken by an inflammatory process, when blisters form, or when there is weeping from the surface there is one best treatment; the "wet dressing": a tablespoonful of boric acid in a quart of boiled water—

Rx—(boric acid water)
Boric acid ...20.
Water qs ad 1000.

Surgical gauze is saturated with this solution and applied continuously to the inflamed area for 24 to 48 hours, changing every 2 or 3 hours and never permitting the gauze to become dry. This sooths, allays inflammation, dilutes and drains away the irritating secretions, and favors a rapid return to normal. The value of this simple wet dressing cannot be exaggerated. It is always indicated in oozing inflammations. A 1% resorcin solution is a pleasing variation:

Rx—(resorcin - water solution)
Resorcin .....10.
Water qs ad .....1000.

Immediately following the wet dressings, and in sub-acute stages a "liquid powder"

such as calamine lotion hastens resolution. The following is very effective:

Rx—(liquid powder)
Zinc oxide
Talc ..aa 25.
Glycerine ...1. or 2
Water
Alcohol did. aa ad 100.

This preparation is vigorously shaken and applied 2 or 3 times daily. It quickly dries and leaves a white adherent powder. The glycerine favors adhesion, the alcohol is drying and astringent.

Since many skins do not tolerate for long fat free astringent preparations, the following "cream" may be indicated at an early date in order to avoid eczematous relapses:

Rx—(bismuth cream)
Zinc oxide .....5.
Bismuth subnitrate ..3.
Olive oil
Lime water aa ad 200.

This prescription, applied twice daily, is very good for dry skins whether normally dry or due to frequent washing with soap.

Almost equally soothing to a dry scaly skin is fresh U. S. P. cold cream rubbed in well and powdered over with the zinc oxide-talc dusting powder.

When a skin eruption is persistent and shows signs of being chronic, stimulants are indicated. Here sulphur and tar are of especial value. They are both efficient and safe. The sulphur may be incorporated in the zinc oxide-talc dusting powder, or be added to the "liquid powder" when indicated.

Medicaments are often administered in too strong concentrations. Small percentages of sulphur are often very effective while higher strengths may be distinctly irritant. Therefore a 1% or 2% preparation should be given at first. If later indicated, the strength may be increased to 10%, or even 20%, if the skin will tolerate it. If however there develop signs of irritation, it must be discontinued at once, a soothing preparation like plain cold cream or boric acid ointment applied for a day or two, when the sulphur may be resumed in a low percentage. In a similar manner, tar in the form of liquor carbonis detergens may be added to all the liquid preparations. It is mildly antipruritic, a splendid substitute for sulphur with the advantage of solubility. It may be combined with sulphur in the same prescription, even in ointments if the base contains a water retaining substance such as lanolin, eucerin, or aquaphor.

In acute inflammatory conditions of the skin ointments are rarely indicated. Powders and lotions, particularly lotions, are more desirable.

In sub-acute and chronic conditions where continuous stimulant action is desired ointments are indicated. As a universally tolerated ointment base I suggest the following:

Rx—(ointment base)
Cold cream ..80. (4 parts)
Lanolin .....20. (1 part)

To this ointment base one may add zinc oxide up to 25%. This makes an efficient, mildly astringent, soothing ointment, but is insufficient where antiseptic, antipruritic, or distinctly stimulant action is desired.

For antiseptic, antiparasitic, and stimulant actions precipitated sulphur may be added to ointments in percentages from 2% to 20%, depending upon the amount of action desired and the tolerance of the skin. Salicylic acid may be added up to 1% for its keratoplastic action; from 2% to 5% for its keratolytic action. Crude coal tar may be incorporated in any proportion, usually beginning with 8% or 10%. Phenol may be added up to 1% as an antiprutitic.

Ammoniated mercury, or white precipitate, must not be neglected. It is virtually a specific in the treatment of all superficial pyogenic infections of staphylococcus and streptococcus origin, such as the impetigoes. Is it effective in percentages far less than the official U. S. P. which is 10%. A 2% strength in a cold cream-lanolin base is usually sufficient, or the official U. S. P. may be diluted as follows:

Rx—(2% white precipitate ointment)
Ammoniated mercury ointment—
U. S. P. .....10.
Cold cream .....32.
Lanolin ..... 8.

Mercury and sulphur should not be prescribed together for aesthetic reasons: the black mercury sulphide may be formed, and patients may not appreciate this astonishing though harmless discoloration.

In the systemic treatment of skin diseases we shall mention two drugs: (1) Calcium may be indicated in acute inflammatory conditions, and is frequently successful in such conditions as recurrent urticaria or hives. It may be given in the form of the gluconate intravenously, intramuscularly, or by mouth. In any case to be effective, huge repeated doses must be given. (2) Arsenic, as Fowler's solution or Asiatic pills, is of great value in many chronic skin affections such as lichen planus, psoriasis, dermatitis herpetiformis, pemphigus, and mycosis fungoides. It must never be given in the acute stage of any disease; only when it has become chronic can the use of arsenic be permitted. Administered over long periods of time it may in itself produce skin disorders.

To illustrate the applications of this pharmacopoeia let us observe the treatment of some of the more common skin diseases met within general practice:

Infant Eczema: This disease occurs within breast fed as well as artificially fed babies, starting usually on the face or scalp. It may be allergic, and is certainly on a seborrheic base. Locally crude coal tar is almost specific. The prescription is as follows:

Rx—(infant eczema)
Cold cream .....75.
Lanolin .....15.
Crude Coal tar.....10. to 30.

This ointment is applied thickly to the eczematous areas, covered loosely with a bandage or a mask, and left in place 24 to 48 hours. It is removed with warm olive oil. Two or three applications suffice to clear the condition. It may recur within a few weeks, when the treatment must be repeated. Water should be avoided throughout the treatment.

Impetigo Contagiosa: This is a superficial streptococcus infection common on the faces of children. Here ammoniated mercury is practically a specific. A very satisfactory prescription is:

Rx—(impetigo salve)
Cold cream .....20.
Lanolin ..... 5.
Ammoniated Mercury Ointment 5.

The crusts are removed and the ointment applied twice daily for three days, each application being removed with a piece of gauze saturated with olive oil before each new application. After three days the 1% salicylic acid solution in alcohol is applied twice daily for a week. Water must be avoided throughout the treatment to avoid spread of the infection.

Pityriasis Rosea: This is a mild macular eruption covered with faint scales. It is becoming very common, causes the patient much mental anxiety, and is absolutely harmless. It runs a normal course in 6 to 8 weeks but can be cleared up in a week by the vigorous application of the following:

Rx—(sulphur zinc paste)
Zinc oxide .....20.
Precipitated sulphur .....20.
Cold cream .....48.
Lanolin .....12.

This is applied twice daily for a week, without bathings. At the end of the week one takes a bath and changes his clothes. Talcum powder may be dusted over the skin.

Seborrhea: This is a disturbance of the sebaceous glands; notably of the scalp, face, and mid areas on the trunk. Since there seems to be a hereditary tendency to this disease and since the majority of the cases of baldness claim seborrhea as a predisposing cause it is a disease of major importance. Here again sulphur is invaluable as a therapeautic agent while the addition of salicylic acid softens the scales and favors the penetration and action of the sulphur. The following prescription is representative:

Rx—(seborrhea salve)
Sulphur ppt. ..... 5.
Salicylic acid ..... 2.
Cold cream .....75.
Lanolin .....15.

This should be applied twice daily.

For hairy regions, like the scalp, a thin oily base is desirable. The following is recommended:

Rx—(scalp salve)

Salicylic acid		4.
Castor oil	qs	
Sulphur ppt.		40.
Olive oil	qs ad	100.

Rub into the scalp daily for a week, then twice a week thereafter. The hair may be vigorously rubbed daily with a dry towel and thoroughly brushed. One may shampoo the scalp at the end of the first week, and not oftener than every two weeks thereafter. Acne, an adolescent disease of the seborrheic origin, is also benefited by these prescriptions.

Dermatophytosis: This is a pandemic fungus disease which at times is resistant to all forms of treatment. However, a persistent effort to make the environment unsuitable for the growth of the fungus, as well as an effort to destroy it directly is often successful. The fungus likes moisture, an alkaline reaction, and though readily killed by antiseptics is very easily reinoculable—especially on a susceptible skin. One must therefore:

1. Diminish moisture; 2, establish an acid reaction; 3, supply persistent antisepsis; 4, diminish skin susceptibility.

Since the primary focus of infection is usually on the feet the following treatment is often successful: During the day the socks are changed twice, the following powder is dusted into the shoes, socks and between the toes:

Rx—(foot powder)

Salicylic acid		5.
Sulphur ppt.		10.
Zinc oxide		
Talcum	aa ad	100.

At night the following ointment is used:

Rx—(foot salve)

Salicylic acid		5.
Sulphur ppt.		10.
Yellow vaseline	ad	100.

Pledgets of cotton or gauze are placed between the toes, during the day the powder is dusted into a fresh pair of socks which are put on. The feet should not be washed with water but should be cleansed with the salicylic acid-alcohol solution. When the condition is apparently cured the powder must be continued for at least a month longer. Even then a relapse may occur on its discontinuance. A similar treatment is equally effective on the hands, but relapses may be expected. As a final resort, the skin susceptibility may be diminished by careful irradiation with x-rays, but such treatment may only be given by an expert.

Eczema: Until the cause is found eczema must be treated symptomatically. Often the specific cause is never found. For the weeping stage one uses continuous wet dressings for two days. The 2% aqueous boric acid solution is satisfactory. As soon as the weeping has ceased one may resort at once to a mild ointment containing not more than 1% of sulphur or tar. This should be rubbed in and covered over with the zinc-talc dusting powder to prevent stickiness. Cleansing must be made with the ointment, or the salicylic acid-alcohol solution. Water and soap are contraindicated. The strength of the ointment may be cautiously increased, but any signs of irritation mean an immediate reduction in strength. Should a relapse to weeping occur, wet dressings must be applied and the treatment started all over again.

In conclusion may I suggest that we have the courage (1) to avoid over-medication, (2) to stick to one treatment as long as it works, (3) to write only simple prescriptions, (4) to avoid proprietary preparations unless we know what they contain, and (5) to employ only a few drugs, but know them well and use them wisely.

Discussion

Dr. J. E. Hubbard, Huntington: I am glad that Dr. Bonar mentioned *focal infections.* At the 1929 Southern Medical Association Meeting the importance of differentiating between *focal* infections and a *focus* of infection was emphasized.

The *focus* infection is responsible for a definite disease, the typical one of which is a chancre in syphilis. On the other hand a focal infection, while often accounting for several skin diseases, may also be responsible for other diseases.

In *pityriasis rosacea* there is a group of dermatologists who contend that a large percentage of the cases are accounted for by a *focal* infection, such as teeth, tonsils, etc. There is another group who contend that it is an infection. At the Vienese clinic the majority of the dermatalogists say that it is an infection of unknown origin.

Quite recently Dr. Lord of Baltimore gave a very interesting summary of literature covering several decades. The doctor arrived at the conclusion that it is due to specific unknown organism, and that the port of entry is the herald patch.

There are many things that would lead us to believe that it is an infectious disease. It is not infrequent to have the occurrence of a small epidemic. A great many cases have been reported of several in the same family or in a group being infected at the same time. Another thing that seems to add to the theory of infectious origin, is the fact that one attack usually produces an immunity for life. Practically all dermatologists advise the use of the alpine ray as the agent of choice in the treatment. However Dr. Lord advocated the use of the x-ray in the beginning on the herald patch.

Dermaphytosis seems to occur more often in the male than the female. The explanation of this is that the feet of the female have better hygenic attention and also she wears lighter shoes and silk hose, while the male wears much heavier shoes, very often woolen or cotton hose and is not as particular about cleansing the feet. The heavier shoes and stockings tend to increase perspiration and create a more fertile field for the fungus to thrive in. I believe that the prevention of reinfection is of great importance. I advise my patients to use gauze for drying the hands and feet. This should be burned, or boiled for at least fifteen minutes before being used again. In acute cases I restrict the use of soap and water, but in chronic cases I advise the thorough scrubbing daily with soap and water of all the lesions, following which they are well dried and an ointment containing salicytic and benzoic acid is applied. This is used twice a day. In conjunction with this I use the x-ray. The x-ray seems to lessen the perspiration and I believe produces a chemical change in the skin, so that the fungus has a field which is not as inducive to its growth and reproduction.

The frequency of dermatitis medicans is too common. Many cases have been converted from a mild primary condition to a very severe distressing one as a result of improper therapeutic measures.

Dr. W. B. Martin, Huntington: I had the pleasure of reading Dr. Bonar's paper in advance of the meeting and enjoyed it very much. It is a well written paper on a timely, but greatly overlooked subject.

There are several points I would like to bring out about conditions discussed by Dr. Bonar. The first is impetigo contagiosa.

We use ammoniate of mercury ointment in 5% strength but have found that the condition improved more rapidly if the ointment is kept on the lesion continually and not just applied two or three times a day. We use the ointment until the lesions are entirely well.

I wish to emphasize the importance of warning the patient about the danger of spreading the disease. This is particularly true in men with lesions of the face. They should use a brushless shaving cream and boil the razor each time they shave.

Infantile eczema is very largely dietary in origin and no treatment will bring about permanent results unless the offending dietary disturbance is corrected. After the diet is corrected we use a soothing lotion in acute conditions and a bland ointment in chronic cases. Along with this we use the x-ray.

I believe that 10% to 30% crude coal tar ointment will produce a tar dermatitis in a large percent of cases. Whenever we wish to use tar we use one of the refined preparations (liquor carbonis deturgens or oil of cade) and in three to six percent strength.

Dr. R. O. Halloran, Charleston: It is a pleasure to have the opportunity of discussing Dr. Bonar's excellent paper. He has brought to us in simple language good sound practical treatment of dermatoses. I certainly want to endorse all that he has said for I think his procedures are rational and very good. I can't over-emphasize the importance of wet dressings especially in vesicular conditions. Dr. Bonar prefers boric acid while I favor potassium permanganate. Wet dressings are particularly apropos at this season with poison ivy coming in.

The skin, as you know, is an unknown equation to all of us. When we treat it we should first of all attempt to make a diagnosis. This does not mean that we can't treat satisfactorily if no diagnosis is made right at first. Our aim always is to treat the skin and not a diagnosis. Many skin lesions are puzzling and admit of a diagnosis only after careful study and observation for some time.

But in all skin conditions we proceed along certain lines, such as, "soothe the acute and stimulate the chronic". The unfortunate thing is that there is no simple rule to follow for all the conditions that fall between the above extremes.

I think Dr. Bonar's conclusions are very pertinent, especially the one in the last paragraph where he states that we should stick to anything that works. Another thing as you no doubt know, Dr. Bonar has studied in Vienna and I am quite sure that all of you respect the fact that he still came home with simple remedies. You can count on your fingers the old standbys: sulphur, ammoniated mercury, tar, salicylic acid, phenol, menthol, calamine lotion, resorcin etc., whose wise and intelligent use in the prescriptions Dr. Bonar has given us will readily take care of the many inflammatory skin conditions we meet.

Dr. Howard T. Phillips, Wheeling: I want to compliment Dr. Bonar on the very excellent paper he has presented. It is a fine review of the pharmacologic therapy in diseases of the skin. Dr. Bonar's training as a pharmacologist is easily seen in the prescriptions which he offers.

Getting back to first principles in dermatology is most essential. The first and primary thing to know is that to heal an irritated skin it is necessary to soothe it, while in a chronic condition it may be necessary to apply stimulating remedies. Most skin diseases are made worse by self medication and indeed by many physicians who violate this rule and irritate an already inflamed condition instead of soothing it. In case of doubt, always apply the soothing rather than the stimulating or irritating remedies. I have never been able to see why the official U. S. P. ammoniated mercury ointment should not be 2% instead of 5 or 10%. The fact is, that a 2% strength of this ointment is as germicidal as a 5 or 10% and is not nearly as irritating. Using a percentage stronger than a 1 or 2% often defeats the purpose for which it was intended for when a stronger percentage is applied to an oozing surface it causes an additional flow of serum and instead of allowing it to remain in contact with the skin it is washed off. In such cases especially where mercury is indicated I believe, the best procedure to be hot applications of a weak bichloride of mercury solution (1 standard size, 7½ grain tablet to three pints of water) until the oozing stops after which the ointment may be applied. Examples of this may be found in impetigo contagiosa, infectious eczematoid dermatitis and pyodermic lesions in general.

Dr. C. N. Brown, Widen: I enjoyed this paper very much, especially since I have recently had some personal experience with an itching skin affection on my legs, and was three weeks in the General Hospital under the care of Doctor Halloran. While these conditions are not dangerous to life they may cause a great deal of annoyance and any remedy that will relieve, is gratefully received. I believe any local remedy applied to a skin trouble that comes from within such as urticaria or other allergic manifestations are made worse by such applications as are also all salves, dressings and bandaging harmful. In my own case I believe the eating of oysters several meals during the week brought out the dermatitis on my legs. Having had a variety of remedies at hand and trying most every thing I will give you the result of my experience.

I do not mean to say that local remedies are not helpful in many skin diseases that are outside the body origin. As every one knows what sulphur will do for scabies and ammoniated mercury for impetigo contagiosa used correctly. The remedies that are most useful to skin affections that come from certain foods are the following: In the beginning, clean out with a laxative such as calomel and magnesia sulphate. Make a study of the possible cause of the dermatitis and of course eliminated from the diet. When a part begins to itch I pursue a hands off policy and in 15 to 20 minutes the itching subsides. Any itching skin trouble aggravated by heat will quickly subside when the parts are exposed to cool air. I have had my socks rolled down to my shoe tops and my drawers legs up to my knees for three months to allow the cool air to come in contact with the itching skin and I got great relief. I have also had personal experience with 15½ gr. doses sodium thiosulphate intravenously daily and believe it a good remedy, as I do also sodium citrate, a teaspoonful in water every three hours.

I will mention luminal 1½ gr. doses at bed time when the itching gets in on the nervous system as a very fine remedy. There are many things to learn about skin diseases and any one who by personal experience or otherwise can produce a remedy of positive certain value is a great public benefactor.

Dr. Bonar, (closing the discussion): Dr. Brown's point in regard to rest is a very, very valuable one. I think we should have not only general rest, as he suggested, in cases of urticaria, but a local rest. The suggestion of luminal is very good. I find it very effective. Many people, however, have susceptibility to luminal. Another symptomatic remedy against itching is aspirin. I have seen a number of cases of itching and similar disturbances greatly relieved by administration of aspirin.

THE MANAGEMENT OF ACUTE HEAD INJURIES*

By ARCHER A. WILSON, B. A., M. D.
Charleston, W. Va.

OUR modern rapid transportation is responsible for an increasing mortality and morbidity as result of injuries to the head. Therefore this subject is of interest to nearly every branch of clinical medicine and the general practitioner in the remote hamlet, no less than his surgical colleague in the city has a responsibility in the care of persons who have had the misfortune of sustaining an injury to such a vital structure as the brain. It behooves us all, then, to familiarize ourselves with the fundamental principles underlying the proper care of such cases, so that we will not needlessly sacrifice life and function because of ignorance or indifference.

The care of most head injuries is properly the responsibility of the general surgeon, as neurologic surgeons are not often available. Certainly the patient cannot always be taken to the larger centers and such a course should not be expected, nor can the neurologic surgeon be brought to the vast majority of head injuries. General surgeons therefore, are in a position to render their community a great service by the intelligent care of those whose brains have sustained violence.

In the care of severe brain injuries it is most important that early and efficient treatment be instituted so that the patient may be given the greatest possible opportunity of surviving with the least possible disability. This early treatment should be directed toward preventing death within the first few hours, from shock, local pressure or from general pressure on the medullary centers, and preventing infections,—with the aim in view of the restoration of the individual to society with a minimum of crippling residuals, both physical and mental. We are now but little concerned with the actual fractures of the skull, except in so far as they are the cause of actual or potential injury to the brain and its coverings. The all important determination in every case is the degree and character of the injury to the intracranial contents. The end products of trauma to the brain are precisely the same as those of trauma elsewhere, namely edema, hemorrhage, and destruction of tissue.

Our first and paramount concern with acute injuries to the head is the preservation of life. The immediate cause of death is increased intracranial pressure. Only when life is safe are we justified in dealing with injuries affecting function. Perhaps seventy-five percent of the deaths take place within the first eight hours after the injury, and as a rule in these cases death is inevitable, but many of the patients who survive this period to die later might be saved by more efficient medical care than is usually obtained. Nothing in the practice of surgery requires closer investigation and better judgment than the successful management of patients who have sustained an injury to the brain and in no other field does the inexperienced practitioner assume so much responsibility.

The presence of shock in varying degrees is a factor in the vast majority of head injuries so that its appropriate treatment is of the most urgent consideration. This state must first be overcome if the patient is to survive

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and no examination or repair of lacerations are to be permitted which would place the life in further jeopardy. Bleeding points, of course, should be controlled by pressure bandages and broken limbs splinted. A rapid survey should be made to ascertain the associated injuries, and the condition of the pupils should be frequently noted. The treatment for shock here, of course, is the same as for shock in general, which should include the maintenance of body heat, quiet, and the intravenous administration of hypertonic glucose and such other special measures as seem indicated. While morphine should be used with caution in acute head injuries for fear of its depressing effect upon the respiratory centers which might already be embarrassed by a rising intracranial pressure, we feel that its use in the control of an exceedingly restless patient is thoroughly justified.

After the period of shock has subsided and life is safe, then and only then are we justified in repairing obvious damage and making a thorough survey to determine the extent of the injuries, which of course, in these days of medico-legal complications, necessitates x-ray studies. There would seem to be very little need or excuse to rush a patient immediately to the x-ray room when the palpating fingers reveal no evidence of gross cranial damage, for, after all, we are little concerned with fractures per se, unless depressed or involving the sinuses and mastoid. If there is a suspicion that the middle meningeal area is involved in a fracture with the possibility of an extradural hemorrhage, then earlier plates are permitted. As a matter of fact, x-rays in a restless patient mean very little anyway and often have to be retaken when the patient is more coöperative.

The proper care of scalp lacerations and contusions is emphasized, as the failure to care adequately for such wounds often results in infection, meningitis, brain abscess or unsightly and painful scars. Not infrequently it becomes necessary to do a later operation and if these simple scalp lacerations have been neglected or poorly handled, then such operative proceedures carry an added risk. Therefore, all scalp wounds should be widely shaved around, disinfected with iodine, encircled with novocaine, the underlying skull explored for fracture, and the laceration completely cut out. It is needless to add that all patients having such injuries should be immunized against tetanus.

Bleeding from the middle ear is presumptive evidence of a fracture through the middle fossa, and in such cases one will usually see an ecchymosis overlying the mastoid area —the so-called Battle's sign. Fractures of the skull are often compound through the base and the fracture line may extend through the frontals, sphenoids, ethmoids or mastoid giving rise to added risk of meningitis or abscess. No treatment is applied directly to compound fractures of the base. Bleeding from the nose and mouth are likewise assumed to be due to fracture of the anterior fossa, in the absence of evidence of direct injury to these parts, and in such cases, there is early and marked swelling about the eyes and ecchymosis of the lids. In fractures through these fossa, it is unwise to attempt sterilization of nose or ear and packing should not be permitted save in rare instances where hemorrhage is alarming. The ear canal should be carefully cleansed with alcohol, covered with a sterile dressing and fixed with bandage.

Compound depressed fractures, often comminuted, demand repair as soon as the patient's condition permits and should always be done under local anæsthesia if possible. If the dura be torn and the brain substance be lacerated by indriven fragments, these should be removed and the products of trauma floated out by saline and wet cotton and all devitalized brain tissue cut out with a sharp knife so as to reduce to a minimum the resulting scarring of the brain with its disabling residuals. The dura is closed tightly without drainage. If the wound is not obviously contaminated and the operation is done early, the fragments of bone may be replaced over the dura to be later covered by fibrous tissue and the patient is thereby spared a cranial defect.

The simple depressed fracture may be elevated at ones leisure. A small drill opening just outside the depressed area through which a curved periosteal elevator is introduced effects an easy replacement with the preservation of the skull contour. These cases should seldom result in cranial defects. We believe that all depressed fractures should be elevated if the depression is through the thickness of the skull. It is certainly inexcusable to permit a depressed fracture to go unrepaired over the motor or sensory areas where convulsions are so easily initiated.

The diagnosis of depressed fractures is not always easy to the palpating finger, especially as there is usually much edema and hemorrhage. People struck with such relatively sharp objects as a rock, butt end of a pistol, etc., often have depressed fractures with practically no unconsciousness. It is a good idea to x-ray all such cases as the driving in of the bone apparently takes away from the brain the force of the concussion and the absence of a history of unconsciousness is misleading.

When is surgery indicated where the brain and its coverings alone are primarily damaged?

Fortunately, we are getting away from surgery on acute brain injuries. This is partly due to the fact that we have means at our disposal to combat intracranial tension which were formerly unknown. And we have found out that surgery in the early hours following an injury is often all that is needed to rob the patient of his one chance to recover. The intelligent use of the spinal fluid manometer has made decompressions a rare operation in the hands of those dealing largely in head injuries. This conservatism in the handling of brain injuries has come largely through the teaching and example of neurologic surgeons. There are still too many operations being performed on skulls upon too meagre study and lack of a definite indication and without any accurate appreciation of the intracranial pathology. A continued unconsciousness does not necessarily constitute an indication for an operative procedure and the practice of some surgeons of operating on unconscious patients immediately or a few hours after hospital entrance without some definite and recognized indication is most reprehensible. When one has had any extensive dealing with patients who have had destructive surgery done on their skulls, whether indicated or not, he becomes exceedingly impressed with the great sentimental value that human beings attach to their intact skulls, much more so than to their brains apparently, and he is loath to leave cranial defects through which a patient may feel each pulsation of his brain. This is particularly true as regards accidents sustained in industry and traffic, with their resultant terrific financial, social and economic losses.

There can be no question but that an acute head injury which has resulted in a rupture of the middle meningeal artery, or one of its branches, is a surgical emergency of prime importance, the early recognition and prompt handling of which is life saving. Fortunately, extradural hemorrhages are not common, though in every head injury symptoms and signs of this emergency should be looked for, as the hemorrhage is usually large and rapid, owing to the tearing of numerous small vessels as the hematoma peels the dura from the skull. The evidence upon which the diagnosis is based or suspicion directed to this complication is as follows: There is usually evidence of a blow in the temporal region and x-rays will almost invariably demonstrate a fracture line across the middle meningeal artery or its branches. The text book picture of a free interval sandwiched in between two periods of unconsciousness is easy to recognize but with an associated brain injury also which has produced immediate and continued unconsciousness and perhaps bloody spinal fluid which is under increased pressure, the problem becomes more difficult. The following case report will illustrate the diagnostic data necessary to recognize this condition. Miss R. B., age 17, while walking along the highway was knocked to the pavement by an automobile on December 19, 1930 at 6:30 p. m., and rendered immediately and continuously unconscious. On admittance to the hospital a short time later blood pressure was 115/80,

pulse 70, she was very restless, and bloody spinal fluid and brain tissue was extruding from the right ear. Neurological examination was otherwise negative. At midnight her blood pressure was 145/80, and she was still extremely restless. Fifteen grains of sodium luminal was given and a lumbar puncture done which revealed a uniformly bloody spinal fluid of cherry color and under pressure of 250 mm. water. There were no reflex changes. Nine o'clock a. m. still no reflex changes, and blood pressure was 135/80. At noon it was noted that in threshing about in bed, patient was not using her left arm and a facial weakness was noted also. Blood pressure 145/80. X-ray showed fracture line crossing the groove of the middle meningeal artery. And with these findings, an extradural hemorrhage was suspected and an operation at 2:50 p. m., under local, revealed a large clot which was successfully handled with a prompt return to consciousness and full recovery. A facial weakness spreading to the arm or convulsions of these members in this order is nearly always found because the clot is directly over these centers. The rising blood pressure also pointed to hemorrhage. Often the pupil on the side of an extradural hemorrhage becomes dilated, a diagnostic point of considerable significance, first described by Rand. This is none the less true in subdural hemorrhage also and in itself, if it does not represent a third nerve palsy, in which case there will also be a ptosis of the lid, constitutes an indication for operation on the side of the dilated pupil always, regardless of x-ray findings or a paralysis of the ipsolateral side. Without the aid of the unilateral dilated pupil, subdural clots are very hard to diagnose, hence the necessity of close observation of the pupils. There must be evidence of general as well as local pressure. In the absence of evidence of increased intracranial pressure as shown by spinal manometers which is the only accurate and reliable way to demonstrate states of pressure, what possible good can be hoped for by a cranial operation, regardless of the patients clinical condition or state of consciousness? In many of the diffuse brain injuries the pressure is often low, and to proceed to decompress or dehydrate such cases without first determining the presence of increased pressure and the desirability of such procedures, is unwarranted and futile, as operations often reveal a shrunken brain and the operation has added further obstacles toward recovery.

Since one sees so many old head injuries with cranial defects in their temporal areas, we feel that some attention should be directed toward the question of decompressions, if for no other reason than to call attention to the fact that such operative procedures are now relatively rare as compared to former practice in large centers where numerous head injuries are treated. Decompressions in the early hours following an injury almost never save a life, save where a bleeding point can be stopped such as in extradural hemorrhage. We believe decompressions are definitely indicated in such cases as show a slow pulse rate with high blood pressure, combined with deep stupor, in which a spinal tap shows bloody fluid under marked increased pressure of some 500 mm. water. In such cases, lumbar puncture with drainage meets the same contraindications as it does in increased intracranial pressure associated with brain tumors. It is certainly not safe to withdraw any appreciable quantity of spinal fluid and the dehydrative measures are likewise insufficient in themselves. A decompression plus dehydration is urgently needed in this type of case. It is needless to add that where the indication for such an operative procedure exists, the decompression should be large enough to serve the purpose and the dura opened widely and a rubber tissue drain left in for twenty-four hours. Clots are often found as are marked accumulations of fluid and their removal is much to be desired. Other indications for operations are evidences of localized clots, which cause paralysis or Jacksonian attacks of a member or members, cerebro-spinal rhinorrhoea, and pneumocephalus. In the last two, the indication to be met is the prevention of meningitis by closure of the dural rent by fascia lata from the thigh or muscle grafts.

Where the fracture line involves the sinuses or middle ear, the likelihood of a meningitis or brain abscess becomes apparent. Fortunately, these complications are relatively rare but should be constantly kept in mind, especially if the case is not progressing satisfactorily, and the lumbar puncture needle should not be withheld after a healthy suspicion of a meningitis has been entertained. After meningitis has developed, its treatment should be vigorously pushed.

A most interesting case in point has recently come under observation. D. E. J., age 45, on March 22, 1933, was hurled from a ladder by an explosion in a chemical plant. He was rendered immediately unconscious and sustained a bursting fracture right half of the skull and a badly lacerated and broken nose. Cerebro-spinal fluid and blood drained from the left ear for several weeks, the discharge finally becoming purulent. There was evidence of an old infected mastoid on the left. For two or three days he was able to answer questions, then went into a profound stupor for five weeks. It was felt that such a condition was not due to a direct injury to the brain such as contusion and laceration and lumbar puncture revealed clear fluid, under normal pressure, but containing 156 lymphocytes and normal spinal fluid sugar (which ruled out a meningitis). A few days later the cell count had dropped to 56 and ten days later to normal. There was never any stiffness of the neck and very little temperature, and the neurological examination was always negative. The diagnosis, therefore, was a meningo-encephalitis, due to fracture through an old infected middle ear and his recovery to normal is taking place in a most gratifying manner.

Gun shot wounds in which the missile has penetrated the brain is a type of injury not infrequently seen and the results of treatment of wounds of this kind are very gratifying, but often the patient is not given a fair chance because of the belief so often held that nothing can be done. These patients should be operated upon immediately unless obviously moribund, treatment being directed toward the control of hemorrhage and prevention of infection and is to be attempted under local even in the presence of shock, treatment for same to be carried out during the operation. All devitalized scalp, skull, and dura are to be cut away and the track of the missile cleansed of lacerated brain, clots, debris and the missile itself removed if possible and the wound closed without drainage. In retained foreign bodies, brain abscess or meningitis may be an early or late complication.

A degree of cerebral edema is a constant complication of severe head injuries and our present treatment is directed largely towards the reduction of cerebral edema and increased intracranial pressure, by applying our present day knowledge of intracranial physiology toward reducing this edema and in this way allowing the contused areas to recover. Cerebral edema and increased intracranial tension of moderate degree is perhaps a helpful influence in the early stages of head injuries as they act as a powerful means of controlling hemorrhage from torn capillaries and veins and its early artificial reduction may aggravate bleeding. For this reason, it would seem wise not to do lumbar punctures within the first few hours after injury though this calls for the exercise of judgment on the part of the attendant.

The question of lumbar punctures is a controversial one, but it should no longer be so since the fundamental experimental work of Bagley has shown that the subarachnoid injection of blood from the animal itself may produce widespread irritative effects, including loss of consciousness and convulsions. It is not surprising therefore, to find that in these cases of head injury in which there is a great amount of blood in the spinal fluid, that the loss of consciousness is usually deep. Since this blood must be disposed of through the eliminative apparatus of the pacchionian bodies, it is reasonable to assume that this places an added load upon these structures which might so impair their normal function as to be responsible for certain definite organic changes which further retard the return to-

ward an otherwise maximum recovery. Since those who object so strenuously toward the use of the puncture in brain injuries admit its usefulness in cases of spontaneous subarachnoid hemorrhage their position would seem untenable. Aside from the mechanical removal of blood from the subarachnoid space which we consider a most useful purpose, perhaps the greatest benefit to be obtained from the procedure is through pressure studies with the manometers, which should always be done. Since our treatment is aimed at the reduction of intracranial pressure how can we possibly show any intelligence in the diagnosis or treatment of such cases if we do not measure the pressure? We think the procedure is further justified as a basis upon which a later evaluation of the frequently met with chronic cerebral state can be more intelligently made if we have such a criterion of brain damage as bloody spinal fluid. These punctures should be done as long as the fluid remains bloody or the pressure is elevated, and the frequency with which they are done depends upon the pressure readings and the patient's clinical condition as he responds to other forms of dehydration, such as 50 per cent hypertonic glucose solution intravenously in 100 cc. doses, two or three times daily, magnesium sulphate by nasal tube or bowel, and limitation of fluid intake. One should beware of a too drastic dehydration program as a too severe water privation is capable of producing an emergency as grave as the condition under treatment.

Quite often, one is called to see a head injury and he finds no notation on the chart as to length of unconsciousness, pupillary reactions, reflex changes, blood pressure observations, or any of the other data that is so essential to the intelligent care of head injuries. Routine orders should include a pulse and respiration record every half hour, blood pressure every hour, observations at frequent intervals as to pupillary changes, state of consciousness, temperature, etc., and it is only with such information recorded that one can appreciate the changing intracranial pathology and be prepared to recognize and deal promptly with any emergencies that may arise. As a general rule pupils that show no response to light foretell a fatal outcome as do early and high temperatures. The blood pressure is low during shock, tends then to assume its normal for that individual, but if compression and bleeding progress, climbs upward until the stage of medullary compression and broken compensation is reached, it is, therefore, a valuable observation and warns of the danger. The pulse is rapid in shock, and slows as intracranial pressure increases until there is a break in compensation and beginning medullary compression.

The general nursing care of unconscious patients should receive special attention. After the period of shock, the head should be elevated to lessen venous oozing, ice caps are applied to the head, frequent changing of position, special positions, at times, to prevent the swallowing of blood or mucous, special mouth care, nasal feedings to supply adequate nourishment and medicines, and the prevention of fecal impactions which are rather prone to develop in unconscious patients. As sedatives, we prefer the barbituric acid derivatives.

Alcoholism is frequently encountered in people who have had head injuries and the two conditions may give rise to the same symptoms. It would seem to be the wisest policy to insist on a twenty-four hour observation period in such cases. Head injuries, if accompanied by any unconsciousness should be under observation for a like period of time before being permitted to return home. The question of length of hospital stay is an important one and no special rules can be laid down. Suffice it to say that the more adequate the immediate care, which consists of close study and intelligent handling and rest, the more adequate the recovery, both from the standpoint of organic cerebral function as well as from the standpoint of the psyche. The ultimate rehabilitation to industry and society should never be lost sight of in these cases, and to this end they require an ordered regimen for many months if they are to regain

their confidence in their ability to carry on after having sustained a severe brain trauma.

224 Professional Building

Discussion

Dr. Wade H. St. Clair, Bluefield: I want to congratulate Dr. Wilson on the frank and thorough way he has covered the treatment of acute head injuries. I think his paper should have been presented to the general session instead of the surgical section as these cases are usually first seen and handled by the family physician.

We owe a lot to the neurological surgeon and we are all glad to have Dr. Wilson with us.

Roughly speaking, head injuries are subdivided into three classes. Just about one third of these cases die within a few hours after the injury, another third will have residual symptoms and another third get well without any residual symptoms. I feel that if we follow this outline or handle these cases in the manner that Dr. Wilson has brought out here that we will undoubtedly be able to switch a few cases from class No. 1 to classes 2 and 3, and we may be able to switch more from class No. 2 to class 3.

Dr. Wilson handles these cases in a most conservative manner, and I am glad to see that conservatism has developed in that line as well as in other surgical work. I believe that can be applied to the acute abdomen—for instance, the acute appendix that comes in at two o'clock in the morning. A few cases that come in for emergency operations if delayed for a few hours observation and study, will turn out satisfactorily without operation. I have reference to the best interest of the patient and not the convenience of the surgeon, oftentimes that patient will be better handled if the operation is deferred until morning or for a few hours. I think if surgeons will take a mental inventory of their cases they will find that they have gotten into more difficulties by rushing into the case and that the best interest of the patient will be to defer that case and study it a little further.

Some time ago a patient came in with a very rigid abdomen for immediate operation. On further observation it was found that the patient's urine was full of sugar and he was found to be suffering from acidosis instead of an acute abdominal condition.

In some of the conditions that Dr. Wilson spoke of, one for instance, he leaves us under the impression that he is able to close the dura and the wound in all cases. That would be ideal, but unfortunately head injuries are often very extensive with lacerations of the dura and brain making it impossible to carry out such a procedure. I should like to ask Dr. Wilson in closing how to handle such cases.

Dr. W. C. Kappes, Huntington: I wish to congratulate Dr. Wilson for presenting to us this timely paper on the Treatment of Head Injuries. My only regret is that there are not more of the members of the Association present to hear this excellent paper.

Dr. Wilson did not leave us a great deal to discuss about the treatment of head injuries, but I think it would be worthwhile to emphasize a few of the points that he has made.

First, other than compound and depressed fractures of the skull we are not interested in the cranial fracture per se, but must concern ourselves with the intracranial pathology incident to the head injury. In other words, we are concerned chiefly with the amount of increased intracranial tension, directing our efforts to the reduction of this pressure. Frequent spinal tappings, (using the Manometer always for pressure readings) with removal of spinal fluid in small amounts, intravenous hypertonic glucose solution, and other forms of dehydration are of paramount importance in reducing the intracranial tension.

Second, conservatism in the treatment of intracranial injuries, is, to my mind, the keynote to success. However, there are certain cases in which we are forced to result to sub-temporal decompression for the relief of tension. One point we have been using in the past two or three years as a criterion for doing sub-temporal decompressions may be mentioned:

Given a case of intracranial tension which does not, after a reasonable length of time, respond to frequent spinal tappings, intravenous hypertonic glucose solution and other forms of dehydration, the indication for sub-temporal decompression is a clear cut one.

Third, I think it is true that a large majority of head injury cases will live even if the correct treatment is not instituted, but if we are to prevent such sequelæ as persistent headaches, dizziness, changes in personality, Jacksonian epilepsy, and the like, it is of paramount importance that we reduce the intracranial tension early in the treatment of these cases.

Dr. Wilson (closing): I wish to thank Drs. St. Clair and Kappes for their discussion of my paper. In the matter of closing of the dura, a question raised by Dr. St. Clair, I will say that it is not always possible to do so, and in some locations it perhaps is not so important, but if the rent is over the motor-sensory areas where it is highly desirable to prevent all possible sources of cortical irritation through adhesions or if the rent be in communication with the nasal accessory sinuses, it becomes a matter of great importance to close the dura tightly and thus prevent a cerebro-spinal fluid rhinorrhoea which nearly always results in a meningitis. In such cases, if there has been such destruction of the dura as to render closure impossible, then a satisfactory closure may be made by a graft from the fascia lata of the thigh.

THE TREATMENT OF POSTPARTUM HEMORRHAGE*

By SYLVESTER J. GOODMAN, M. D., F. A. C. S.,
Columbus, Ohio

"THERE is no obstetric emergency that so seriously jeopardizes the patient's life, that calls for such sure and prompt treatment for its relief, and in which all the courage, resource, and skill of the obstetrician are so suddenly put to the test, as in a severe case of postpartum hemorrhage."—*DeLee.*

The hemorrhage that is considered in this paper is that terrible deluge of blood following delivery, which shakes the accoucheur's nerve to its foundation, and which in a few minutes may drain the circulatory system of the patient. Some obstetricians hold that this is a wholly preventable accident, but I cannot subscribe to this teaching, since it occurs in the practice of the very best obstetricians.

In view of the fact that there is generally no warning of this disaster, it is most important that the physician shall be at all times prepared to act promptly and energetically when it suddenly confronts him. For the so-called postpartum hemorrhage, in the home or hospital, the kit carried by the doctor usually will carry him through safely; but I am considering a uterus which, while not seriously lacerated, fails to contract or retract, remains flabby and atonic, and with unclosed sinuses and full of clots. For these cases, and in addition to his regular armamentarium, the doctor should have on hand plenty of hot water, *a pan of cracked ice,* a *good* fountain syringe, a *good* needle for the instillation of salt water into the tissues or veins, aseptic ergot and pituitrin, a clear-headed nurse, and last, but not least, he must appreciate the urgency of the situation and act wisely and *quickly.*

I need not enumerate the symptoms of postpartum hemorrhage to this group of obstetricians; you know them well. The thing to do is to act. What is the first thing to do? If you wish to be mildly amused, when you go home ask your nurses, internes or fellow staff members, just what they would do if suddenly confronted with this condition.

"*Throw back the covers and look.*" I repeat, *look.* Feel the uterus. Never mind the pulse; it will not avail to count it. Then "*turn out the clots,*" by firm pressure upon the uterus. This advice it not new. It was given by Meigs and Hodges in the days when they were ridiculing Oliver Wendel Holmes for his views on puerperal sepsis; it long has been a tradition at Jefferson Medical College.

"*The only safe uterus is an empty one.*" If this maneuver is temporarily successful, ergot and pituitrin may be given hypodermically, but should the bleeding not stop, or start afresh, insert the hand into the uterus and irritate its walls while continuing firm compression with the other hand; and "*turn out the clots.*" If still unsuccessful, carry a piece of ice into the cavity of the uterus, and continue to manipulate it.

*Read before the Section on Obstetrics and Pediatrics, Ohio State Medical Association, Akron, September 7, 1933; also before the Monongalia County Medical Society at Morgantown in June, 1933; and published simultaneously and with the permission of the Ohio State Medical Journal.

In former days we were handicapped in the home by the lack of ice, but today almost every home has a refrigerator. Except in rare instances, I never undertake a delivery without a pan of cracked ice in the delivery room. Some of the hospitals object to wasting ice, saying that "you so rarely use it;" but waste the ice and save the mother. Some will say that the woman surely will be infected by the introduction of the unsterilized ice; but is it practical to scrub the hands anew, sterilize instruments and prepare the vulva when suddenly confronted with this deluge of blood? Certainly not. Roll up your sleeves and, emulating the Roman senators, "wash in Cæsar's blood." Better treat the possible sepsis than perform an autopsy.

The above method—the insertion of the hand into the uterus, the turning out of the clots, the introduction of ice—has been successfully used for a long time in Grant Hospital.

I have not suggested packing the uterus for the control of such hemorrhage. We do not believe in it at Grant Hospital. Dr. Baldwin has taught us the fallacy and futility of packing the womb in such emergency. It reminds him, he says, of the efforts of Mrs. Partington to push back the waves of the Atlantic with her broom. I must admit that nearly all text books advise such maneuver, but that is simply because nearly all text books are merely copies of previous publications. I have emphasized the sudden onset of this hemorrhage; the frightful torrent of blood; the lack of time to prepare to combat it; the quick passing of the patient; but suppose that you are already aseptically prepared to pack the womb; that you have every agent for this technic near at hand; that your nurses are trained by you for such emergency; while you are filling the womb with gauze, the womb will be filling with blood, and expanding until rupture occurs or the patient is dead.

The advocates of packing claim that, if that procedure fails, the technic is faulty. My answer is, that if it is successful it is because the hemorrhage is not the kind of postpartum hemorrhage I am talking about. That I am not alone in this contention is evidenced by the opinion of Dr. J. F. Baldwin, Dr. Wm. S. Smith, of Brooklyn, and many others. In a recent paper, Dr. Smith says: "It is evident that the intrauterine packing is not necessary in the prevention, or treatment of postpartum hemorrhage. The only safe uterus is an empty uterus."

The principal reason for the failure of the uterine pack to control postpartum hemorrhage is that the strips of gauze are too small, the obstetrician is rarely equipped to act instantly, it takes too long to get the patient into position for packing, and the womb is filling with blood while the gauze is being inserted. The patient dies before any result is obtained.

We have lost patients from postpartum hemorrhage, but we are convinced that we have lost less than have those who have resorted to packing. I have several times controlled a postpartum hemorrhage for other doctors, only to have them start the bleeding anew by packing the uterus as a prophylaxis against further bleeding. In all such cases, the patients died.

In conclusion, I offer the following: Teach your nurses and internes to recognize instantly the onset of a true postpartum hemorrhage; to *grasp the womb and hold it firmly; to turn out the clots.* To you, I recommend that you insert the hand into the uterus, and if necessary, introduce a piece of ice; do not pack the uterus with gauze to control a real postpartum hemorrhage. This hemorrhage cannot be foreseen and we should always be prepared to meet the emergency with a pan of ice near at hand.

121 South Sixth St.

EXAMINATION FOR ATHLETES

The track athlete should learn that it is as important to keep a right mental attitude as it is to build up the muscles of the body, for the mental obstacles which athletes find it impossible to overcome are sometimes of a peculiar nature, advises Alfred E. Parker in the January *Hygeia.* His thirteenth chapter of the serial, "Training for Athletics and Health," deals with "Training for Track."

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

The hope of controlling tuberculosis depends largely on our ability to discover cases as early as possible, for the longer a bacillus carrier remains unaware of, or indifferent to, the danger to which he is exposing others, the greater is the number of potential new cases. The search for cases of tuberculosis demands aggressive action on the part of doctors and health workers for many persons with tuberculosis do not voluntarily seek medical advice and others tend to conceal their disease. Two studies recently made in Philadelphia bring out the value of definite case-finding projects and also some of the difficulties. Abstracts from these studies published in the American Review of Tuberculosis follow.

Examining Contacts of Tuberculosis Cases

Sir Robert Philip in 1887 first emphasized the necessity of examining household contacts of tuberculous patients for the purpose of finding early cases and putting them under care so that they may recover and not in turn infect others. Home follow-up work is costly in money and energy, but the results are considered worth the cost. How efficient is it? A health and hospital survey in Philadelphia some years ago showed that only 30 per cent of household contacts of tuberculosis patients of chest clinics were actually examined; an "average county" had examined 20 per cent, and a health demonstration city had examined 60 per cent.

Analysis of Follow-up Work: Analysis of contact work was made of the clinic patients of Henry Phipps Institute diagnosed tuberculous for the first time for a period of 18 months. These patients are designated as the "original tuberculosis patient." The homes of all were visited. A household contact was considered to be any person living in a dwelling and eating at the same table at the date of diagnosis of the original patient.

The family records of the 182 original tuberculosis patients were reviewed one year after the date of diagnosis and the records therefore represent the year's attempt to secure the examination of contacts. It was found that there were 647 contacts of which 308 or 48 per cent came to the clinic within the year after the date of diagnosis of the original tuberculosis patient.

About two-thirds of the original tuberculosis patients were white and one-third colored. Only 11 of the white group were of native born parentage. Families of 60 of the patients were known to one or more of the relief agencies of the city. Four-fifths were between the ages of 16 and 49. For 27 of the original tuberculosis patients there were no household contacts and for 22 only 1. Further analysis led to the conclusion that "the most complete contact examination work will be possible in districts serving large families with many children, colored families, and families with advanced tuberculosis patients with positive sputum."

Reasons for Refusing Examination: The reasons why 52 per cent of the contacts did not come to the clinic were studied by interviewing the visiting nurses.

The three obstacles most frequently met in endeavors to secure contact examination are (1) that the contact wishes to be examined by a private physician or a physician in some clinic he is already attending; (2) that the contact will promise to come to clinic and accept a clinic appointment, but not actually present himself; and (3) that the contact says he feels well and sees no need for examination.

Difficult as it is contact examination is a most important field of tuberculosis work. Of the contacts examined within 12 months of the diagnosis of the first patient, 11.4 per cent were found to be tuberculous, and the diagnoses of 2.3 per cent were undetermined at the end of the 12 month period.

Tuberculosis Clinic and Contact Study, Dorothy E. Wiesner and S. Margaret Smith, Feb., 1934.

Case-Finding Work Among Children

With the best of contact examination work many cases of tuberculosis elude the attention of the doctor and the health officer. One of the supplementary devices for finding cases is that of examining school children routinely with the tuberculin test and the x-ray. By this method early cases of tuberculosis are found among apparently healthy school children, and by examining contacts in their homes active cases not previously known are discovered. A study of this kind was made recently in Philadelphia to confirm previous

observations in the incidence of tuberculous infection as shown by the tuberculin test and of various lesions as shown by x-ray examination.

Additional tuberculin tests made upon children in two schools confirm the conclusion that the incidence of tuberculous infection in Philadelphia is high at the age of 15 years. Of 704 children tested, 566 or 80.4 per cent reacted. No significant difference in the percentage of reactors attributable to sex or race was noted. The percentage of white girls who reacted was somewhat higher than that of white boys, but it differed very little from the percentage of colored girls and boys who had positive reactions.

The authors believe that the percentage of lesions based upon the number of children tested with tuberculin, rather than upon the number examined by x-ray when negative reactors are excluded, gives a fairly accurate conception of the incidence of tuberculous lesions in presumably healthy children.

Lesions Found: The number of significant lesions (defined in the article) in elementary school children below the age of 12 was small, probably about 0.3 per cent. Significant lesions were found in 1.0 per cent of white boys 12 to 20 years of age and in 2.3 per cent of white girls. Colored children in the younger group showed significant lesions approximately five times as great as in white children. (In the older group the number of colored children examined was too small to be comparable with the number of white children.) The authors feel that preventive work is more needed in the adolescent group than among younger children.

The white children in the survey were mainly first-generation American, in large part of Jewish and Italian stock. One of the schools was situated in a district thickly populated by people in very poor circumstances. Half of the pupils were colored. The death rate from tuberculosis for a two year period, April 1, 1929 to April 1, 1931 in the area from which one of the schools draws pupils was 284.3 per 100,000 and in the area from which the other school draws pupils, 219.4.

In the summary the authors say:

"Under the conditions of our survey the tuberculin test unfortunately deters many people from giving consent to examination. When determination of the incidence of infection is not considered essential the tuberculin test may be omitted, in order to survey larger numbers of school children. Some of the children given x-ray and physical examinations will presumably be tuberculin-negative, but this waste may be compensated for by saving the cost of a general application of the tuberculin test to groups presumably in large part tuberculin-positive. School administration and health officers with the aid of parents might devise a plan by which all children could be fully examined.

"The need of prophylactic care for school-children with significant latent lesions is not generally recognized. The value of treatment in open-air classes and preventoria can be determined only by long-continued observation of large groups of children, with accurate diagnoses and adequate controls. Conditions in the schools reported here have not made possible the collection of information concerning the value of prophylactic care within the school system. Nevertheless, it is reasonable to suppose that measures of established value in arresting clinical tuberculosis will prevent the development of latent into clinical diseases if adequately applied to appropriate subjects."

A Further Study of Tuberculosis in Public-School Children, H. W. Hetherington, F. M. McPhedran, H. R. M. Landis and E. L. Opie. Feb., 1934.

W. VA. HEART COMMITTEE

Dr. Oscar B. Biern, Huntington, President of the West Virginia Heart Association, has announced that a meeting of this body will be held in connection with the annual meeting of the West Virginia State Medical Association at Huntington next May 14. The meeting will be held on Monday morning, May 14, so as not to conflict with any of the regular sessions or sectional meetings of the Association. An outstanding heart specialist of national reputation will be secured to address this meeting, and a number of West Virginia doctors will also appear on the program.

The Heart Association is now conducting a drive for new members, who must be members of their county medical societies. Dr. Biern has requested that the JOURNAL ask all interested members to get in touch with him or with Dr. R. J. Condry, of Elkins, regarding membership.

A joint meeeting of the heart associations of West Virginia, Ohio, Indiana and Kentucky is now being contemplated for this spring. It is hoped that such joint meetings can be arranged each year, to meet in alternate states. Announcement has not yet been made regarding the place of the first meeting,

PRESIDENT'S PAGE

On January 15 the Medical Relief Committee of the West Virginia State Medical Association announced that a new West Virginia fee schedule for treating persons on the rolls of the E. R. A. had been approved by the State Welfare Department and by federal E. R. A. officials. The new allowance for emergency medical service is now in operation. The fee schedule provides $1.00 for each "first" office visit and fifty cents for subsequent visits. It provides $2.00 for each "first" house visit and $1.00 for subsequent visits. It provides five cents per mile each way. It provides $10 for confinement cases. It provides a $25.00 emergency fee for any case that might warrant such an expenditure in the opinion of the county administrator and the county medical society relief committee.

The most important change in the above schedule is the $25.00 "discretionary allowance." Through this allowance it is felt that each county welfare administrator and each county medical society may work out their own peculiar local problems. Various factors will govern the use of this "discretionary allowance." Mileage, for example, may be over a dirt or mud road or on horseback. In such instances the mileage allowance may be increased through the "discretionary allowance." A house call may involve the setting of a bad fracture. An office call may involve the removal of tonsils. A confinement case may involve complications requiring unusual skill or an unusual length of time. In all such situations, the "discretionary allowance" may be called upon, in addition to the regular fee schedule, to pay the doctor for actual services rendered.

There has been some complaint against the above fee schedule that was recommended and secured by our Association's Committee on Medical Relief. It has been pointed out that three or four other states allow a fee of $1.00 for all office calls and $2.00 for all house calls. That is true, but these states do not have the "discretionary allowance" that has been secured for the doctors of West Virginia. Another consideration is the fact that the three states known to have the higher allowance for house and office calls have all matched the federal relief appropriations dollar for dollar. That is not the case in West Virginia, where the federal government has appropriated more than 15 million dollars and the state has appropriated less than two million. These various factors must be taken into consideration.

By and large, we feel that the allowance worked out by our state Medical Relief Committee will be satisfactory to a large majority of our membership. We urge all the doctors to give the "discretionary allowance" plan a fair and honest trial. Then, if it isn't satisfactory or if the plan doesn't work, we will try something else. Until that time comes let us work with our state committee rather than against it. Personally we feel that our state Committee on Medical Relief is to be commended for the time and study given to this vast, new problem of medical aid and for the county medical society machinery that it has created.

Roy B. Miller

President.

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THE NEW E. R. A. RATES

On January 15 the new schedule of medical fees went into effect in West Virginia covering emergency medical aid rendered by physicians to persons on the E. R. A. The new schedule is identical with the old allowances, with two exceptions. First, the allowance for "first" visits and "first" office calls has been doubled. Second, a discretionary allowance of $25 has been made available to be used in any and all unusual cases at the discretion of the county administrators and the county medical society medical relief committees.

The important feature of the new schedule is, of course, the discretionary allowance of $25. Its purpose can best be explained by citing a typical case in which it would be applied. Let us assume that Dr. A. is called five miles out on a hard road to make an ordinary sick call. He receives $2.00 for the call and 50 cents mileage; a total of $2.50. But suppose his trip is over a dirt road. Naturally he should receive a higher fee. Let us assume that, by agreement with his county administrator and County Society committee, he receives $5.00 for such a visit. Now, suppose when he arrives at the home and finds a fractured limb. He should, of course, receive a still higher fee for setting the fracture. Again the discretionary fee is called upon to give him adequate compensation for his services. In other words, any part or all of the discretionary fee may be used, if necessary, according to the actual circumstances in each individual case.

There has been some complaint against the fifty cent fee for "subsequent" office calls. A number of physicians, who dispense their own drugs, have stated that the fifty cent office fee was not even enough to pay for the drugs given the patient. We hasten to point out that drugs are a separate item and may be charged over and above the regular office visit fee. Dispensing physicians who give out drugs should list not only the office fee but also the drug cost on their statements. The Association Committee on Medical Relief has recommended that all drug bills be itemized to avoid any confusion on the part of the county administrators.

We assume that most of the county society medical relief committees have already conferred with their county administrators. If any county medical relief committee has not, we urge such committees to do so at once. There are many complaints and misunderstandings that arise almost daily concerning the administration of emergency medical aid. We believe that fully 90 percent of these misunderstandings can be amicably ironed out by conferences between the county relief administrator and the county society medical relief committee. So far as we have been able to observe, a most friendly and coöperative spirit exists in the counties where such conferences have been held. Of course there will continue to be occasional questions that can't be settled locally. When such problems take form, they should be sent in to the Executive Secretary who will submit all such matters to the state committee for final adjudication.

We are pleased to announce that the treatment of compensible injuries suffered by C. W. A. employees has been thrown open to the entire medical profession of West Virginia so that the injured patients now have free choice of both doctor and hospital. Prior to January 1 only certain designated physicians and hospitals in each community could receive this work. The C. W. A. compensation is paid for by the federal government on

a scale somewhat similar to our own Workman's Compensation fee schedule here in West Virginia.

HOSPITAL "LIST" PRACTICE

There seems to be a general concensus of medical opinion in the Southern part of the state that hospital "list" practice is losing ground. It is understood that in some localities, the unionized employees are running their own lists independent of their employers and, more important, independent of compensible injuries. It is felt that this move on the part of unionized labor is at last awakening the coal operators to the point of making a study of the evils of the "list" system.

Viewed strictly from a medical standpoint, the chief objection to hospital "list" practice, exclusive of the compensation angle, is the fact that it removes so many prospective patients from circulation. The minute a hospital signs up a thousand employees on a "list", those patients and the members of their families are no longer available as patients to the medical profession. It is true that in some isolated sections of the state where there is a dearth of both hospitals and doctors, "list" practice may still be an economic necessity. But in the vast majority of cases we find two or more hospitals working against each other and the medical profession suffering on the sidelines.

Why the doctors have put up with this sort of thing as long as they have is somewhat of a mystery. Of course if the hospitals want to cut the throats of their brethren, that's their lookout. But when their rather senseless method of barter reaches out and grabs off medical patients by the thousands, it's high time for the medical profession to start using its own cudgel. The West Virginia State Medical Association, we feel sure, would not only uphold but welcome the action of any of its constituent county societies that would go gunning for the malefactors. Any county medical society in Southern West Virginia could make quite a name for itself by cutting a fire lane in the tinder forest of "list" hospital practice.

The "compensation angle" of list practice is just that much more fuel added to the fire. In every state in the Union except West Virginia, the employers of labor pay the medical and hospital costs of compensible injuries. They don't pay these costs in West Virginia. The workmen themselves pay the hospital costs and, in consideration thereof, the hospitals give the medical service away free. It is a comforting sign of the times to find the union miners getting wise to this compensation racket after all these years. After all, they are more concerned in this Jesse James act than anyone else and it now looks as though they are going to solve their own problem. The miners can fight this battle much more adroitly than the medical profession, because they have contributed most of the skin.

THE PAYROLL DEDUCTION GRAB

One of the results of the late economic depression was the payroll deduction grab that was worked by a large number of employers of labor on their company doctors. For a good many years the employees of large mines or industries, especially in isolated places, have contributed a small monthly wage "check-off" for medical service. A company doctor was then employed to render the medical service and the "check-off" was turned over to him. He rendered all the medical service and he got all the money. If the men liked him, he stayed on the job. If they didn't like him they threw him out.

Then came the debacle of 1929. Industry began to lose financial ground. In looking about for new ways to stem the tide, they hit on the plan of hiring the company doctor themselves, of paying him a modest salary much below the actual "check-off", and of putting the difference in their own pockets. In other words, they decided to go into the practice of medicine themselves and barter medical service to their emplyoees for a profit.

In an effort to put a stop to this new and unwarranted abuse, the West Virginia State Medical Association went into court last spring for an injunction against the Valley Camp Coal Company. The suit was brought by Dr. J. T. Nolan, a member of the Association and a former "company doctor" for the Valley Camp Company. Dr. Nolan's petition set forth that the Valley Camp Coal Company was practicing medicine without a license and requested that they be enjoined.

All too quickly the Association, through Dr. Nolan, won its point. The Valley Camp Coal Company has ceased the practice of medicine and all money collected from their employees for medical service is paid over to the doctor or doctors who render that service. In other words, the Valley Camp Company threw in the sponge and, by refusing to fight, left nothing to be appealed to our state supreme court.

The result of the Valley Camp case was both disappointing and gratifying. It was disappointing in that we failed to receive the state-wide ruling which was our objective. It was gratifying in that one of the largest coal producers in West Virginia ran to cover and waved the white flag when we endeavored to question their method of doing business. While we do not have a supreme court ruling on this particular question, we do have a good wholesome precedent for future guidance. It is usually the case that when the Paisley lawyers run, everybody runs.

THE MINERS HOSPITALS

The sub-committee on hospitals of the Committee on Economy of the West Virginia legislature recently reported to the major committee the results of an investigation concerning inmates, operating costs, salaries, employees, etc., at the three state miners hospitals. It has been pointed out on many occasions that these hospitals serve not only the counties in which they are located but also the entire sections of the state in which they are located. In view of this claim, the report of the sub-committee should be unusually interesting. We publish the report in full, without further comment:

Your sub-committee on Hospitals appointed to investigate and report upon the three state institutions known as emergency hospitals, and located at Welch in McDowell county, McKendree, in Fayette county, and Fairmont, in Marion county, submit the following report:

From information received from the superintendent of each of the above hospitals, we have compiled the following data: The number of patients treated, the percent of patients from the county in which the hospital is located, the percentage from adjoining counties, the percentage from other counties in this state and the percentage from other states.

Patients treated from Jan. 1 to Dec. 1, 1933:

Welch Emergency Hospital—

Total number treated	2215
Percentage from McDowell County	84
Percentage from adjoining counties	13
Percentage from other W. Va. counties	1
Percentage from other states	2
Total	100

McKendree Emergency Hospital—

Total number treated	1124
Percentage from Fayette County	90
Percentage from adjoining counties	8
Percentage from other W. Va. counties	2
Percentage from other states (one patient)	0
Total	100

Fairmont Emergency Hospital—

Totol number treated	2070*
Resided in Marion county	801
Percentage from Marion county	70
Percentage from adjoining counties	11
Percentage from other W. Va. counties	18
Percentage from other states	1
Total	100

*Of this number 923 patients did not stay in the hospital overnight, but received treatment and were dismissed the same day. A great percentage of these patients were in minor accidents caused by automobiles, and a large portion were man injured at their work.

Attention is called to the fact that in the operation of these hospitals, the employees, in addition to their salaries and wages, each receive board, room, and laundry at the expense of the state.

Operating costs for each of these hospitals for the year 1930, which is the latest complete figures available, are as follows:

	Welch	McKendree	Fairmont
Number of Inmates	46	36	37
Number of Employees	33	26	33
Total Expenses	$54,858.46	$39,086.41	$48,244.34
Moneys Collected	49,578.78	15,219.64	26,340.80
Net cost to State	5,279.68	23,866.77	21,903.54
Salaries and Labor	26,680.73	22,554.39	19,979.55
Net per Capita Cost	114.77	662.96	591.99
Per Capita Cost Salaries and Labor	580.02	626.51	539.99

A recapitulation for the three hospitals shows as follows:

Total operating costs	$142,189.21
Total moneys collected	91,139.22
Net operating cost to state	51,049.99
Total paid for salaries and labor	59,214.67
Number of employees	92
Average number of patients	119
Net cost per patient	428.99

SURGICAL CONGRESS

The Southeastern Surgical Congress will hold its fifth annual assembly in Nashville, Tennessee, March 5, 6 and 7. The Andrew Jackson Hotel will be hotel headquarters and the lectures and exhibits will be in the War Memorial Building.

The following doctors will occupy places on the program: Fred H. Albee, New York; W. Wayne Babcock, Philadelphia; S. O. Black, Spartanburg; Vilray P. Blair, St. Louis; Frank K. Boland, Atlanta; J. B. Brown, St. Louis; D. B. Cobb, Goldsboro, N. C.; George W. Crile, Cleveland; T. C. Davison, Atlanta; John F. Erdmann, New York; P. G. Flothow, Seattle; Seale Harris, Birmingham; M. S. Henderson, Rochester, Minn.; Arthur E. Hertzler, Halstead, Kansas; Chevalier Jackson, Philadelphia; Walter C. Jones, Miami; Dean Lewis, Baltimore; Joseph F. McCarthy, New York; C. Jeff Miller, New Orleans; A. J. Mooney, Statesboro, Ga.; John J. Moorhead, New York; Edward T. Newell, Chattanooga; Fred Rankin, Lexington, Ky.; Paul H. Ringer, Asheville; Stewart Roberts, Atlanta; George H. Semken, New York; Phil C. Schreier, Memphis, Arthur M. Shipley, Baltimore; H. E. Simon, Birmingham; A. O. Singleton, Galveston; J. R. Young, Anderson, S. C.; Waitman F. Zinn, Baltimore.

For information write Dr. B. T. Beasley, 1019 Doctors Building, Atlanta.

OBITUARIES

DR. ADRIAN H. GRIGG

Dr. Adrian Hansford Grigg, head of the department of internal medicine at Beckley Hospital, died at the hospital on January 6 at the age of 45 years. Death was caused by pneumonia.

Dr. Grigg was born at Crown Hill, Kanawha County, West Virginia, on August 18, 1888. He received his early education there and at the Montgomery Preparatory school. In 1912 he graduated from the Jefferson Medical College, Philadelphia and following an interneship at the Philadelphia General hospital, he located at Eccles. During the World War he served at Annapolis with the navy rank of Lieutenant, senior grade.

After the war Dr. Grigg located at Beckley and became associated with Dr. J. E. Coleman at the Beckley Hospital where he remained until his death. He was a Fellow of the American College of Physicians and his county, state and national medical society.

Surviving Dr. Grigg are his wife and one daughter, Mary Hamilton Grigg. Two sisters also survive.

DR. L. H. CLARK

Dr. L. H. Clark, pioneer McDowell County physician and Superintendent of the Welch Emergency Hospital died of cerebral hemorrhage on the afternoon of December 23 at the age of 66 years. He died at his home at Kyle three hours after suffering a paralytic stroke.

Dr. Clark was born at Peterstown in Monroe County in 1867 where he received his elementary education. In 1892 he graduated from the College of Physicians and Surgeons at Baltimore and soon thereafter located in McDowell County where he spent the remainder of his life. He was a thirty-third degree Mason, was unusually well known throughout the state in Democratic political circles and had wide and varied business interests in the southern part of the state.

Dr. Clark is survived by his widow and four children, Lewis Clark of Charleston, W. S. Clark of Fairmont; Mrs. Wilson F. Fowler of Istanbul, Turkey, and Mrs. Clayton Rogers of Mexico City, Mexico. His death removes one of West Virginia's best known and most beloved doctor citizens.

COUNTY SOCIETY NEWS

HARRISON COUNTY

At the regular meeting of the Harrison County Medical Society held at the Stonewall Jackson Hotel, Clarksburg, Dr. W. T. Gocke was elected president for 1934, succeeding Dr. H. H. Esker. Other officers included Dr. R. J. Nutter, vice-president; Dr. E. B. Wright, secretary and Dr. Creed C. Greer, treasurer. Dr. H. E. Sloan was elected to the Board of Censors, succeeding Dr. W. W. Spelsburg.

Delegates to the state meeting were also elected at this meeting. Those elected were Dr. F. V. Langfitt, Dr. R. C. Hood and Dr. B. S. Brake. Alternates were Dr. J. E. Wilson, Dr. H. H. Esker and Dr. E. F. Wehner.

There were 43 members of the society present at this meeting. Dr. R. C. Hood made a final report for the Committee on Medical Policy and Procedure. A committee representing the district nurses association also appeared before the society in regard to recent changes in the trained nurse's hours and asked the coöperation of the doctors for the graduate nurses.

Personal: Dr. George F. Evans, former Superintendent of Hopemont Sanitarium, has opened an office for the practice of general internal medicine at 428 West Pike Street, Clarksburg.

E. B. Wright, *Secretary.*

KANAWHA MEDICAL SOCIETY

The regular January meeting of the Kanawha Medical Society was held on the evening of January 16 at the Daniel Boone Hotel, Charleston. This was the occasion of the annual banquet and installation of officers. Approximately 90 members and guests were present.

There was no scientific program presented at this meeting, but talks were made by Dr. G. G. Irwin and Dr. John W. Moore, the retiring and the incoming presidents. Other new officers installed included Dr. O. H. Bobbitt, vice-president, succeeding Dr. H. L. Robertson, Dr. W. W. Point, Board of Censors, and Dr. A. E. Amick, secretary-treasurer, succeeding Dr. M. F. Petersen. A number of business matters were considered following the installation ceremonies.

M. F. Petersen, *Secretary.*

HANCOCK COUNTY

Dr. C. A. Shafer of Chester was elected President of the Hancock County Medical Society at the December 11 meeting at Weirton, succeeding Dr. R. L. Focer who served during the past year. Dr. G. H. Davis, Weirton, was elected vice-president, and Dr. F. B. Harrington, Weirton, was re-elected secretary-treasurer.

At a business meeting of the society held on Sunday, December 3, in conjunction with the C. W. A. Director of Hancock County, it was agreed to appoint a committee of three members to coöperate and work with the Director on all matters pertaining to emergency medical aid. Those appointed were Dr. J. E. Fisher, New Cumberland, Dr. A. B. Rinehart, Weirton and Dr. C. A. Shafer, Chester.

The society plans to hold a joint meeting in February with the Brooke County Medical Society with Dr. A. E. McClue, State Health Commissioner, as the speaker. Arrangements for this meeting are in charge of Dr. Rinehart.

F. B. Harrington, *Secretary.*

MONONGALIA COUNTY

Dr. Roy Ben Miller, President of the West Virginia State Medical Association, was the speaker at the January 2 meeting of the Monongalia County Medical Society which was held at the Hotel Morgan, Morgantown. Dinner was served at 6 o'clock and the program was then taken up. Dr. Miller's subject was "Medical Economics," and his talk was discussed by the members present. A business session followed the regular program.

G. R. Maxwell, *Secretary.*

PARKERSBURG ACADEMY

The installation of officers featured the January 4 meeting of the Academy of Medicine of Parkersburg which was held at the City Hospital. There was a fine turnout of members and visitors. Following a banquet talks were made by Dr. R. H. Wharton, retiring president, and Dr. E. W. Crooks, the incoming president.

The scientific program was presented by Dr. Walter E. Vest, Huntington, who presented a very able paper on "The Relationship of Gall Bladder Disease to Cardiac Pain." Discussion was opened by Dr. Harry M. Campbell and Dr. B. O. Robinson.

Welch England, *Secretary.*

MARION COUNTY

Dr. G. R. Miller, Fairview, was elected President of the Marion County Medical Society at the regular meeting held on December 27. He succeeds Dr. Joe Yost who served during 1933. Other officers elected included Dr. L. D. Norris, Fairmont, vice-president; Dr. G. H. Traugh, secretary; Dr. C. W. Waddell, treasurer and Dr. Joe Yost, board of censors.

Delegates to the state meeting were also elected at this meeting. Those elected were Dr. S. S. Hall, Fairmont, and Dr. C. J. Carter, Fairmont. Alternates are Dr. E. D. Wise and Dr. W. A. Welton, both of Fairmont. The December 27 meeting was devoted only to business matters.

G. H. TRAUGH, *Secretary.*

TYLER-WETZEL COUNTY

The first regular meeting of the year was held at the War Memorial Building, New Martinsville, on January 16 with 15 members and guests in attendance.

The guest speakers on the program were Dr. S. A. Cunningham of Marietta, Ohio, and Dr. R. D. Gill, Wheeling. Dr. Cunningham presented a paper on "Thyrotoxicosis" which was well received. Dr. Gill spoke on "Ureteral Obstructions," laying emphasis on interpretation of symptoms and findings at examination. His talk was illustrated with a series of x-ray plates.

Dr. V. H. Kemper, Sistersville, is the new president for the coming year and Dr. Gene M. Harsha, Sistersville, is secretary.

GENE M. HARSHA, *Secretary.*

OHIO COUNTY

Dr. P. P. Vinson of the Mayo Clinic, Rochester, Minnesota, was the scientific essayist at the January 5 meeting of the Ohio County Medical Society which was held at the Ohio Valley General Hospital, Wheeling. His subject was "The Diagnosis and Treatment of Cardiospasm." Dr. Vinson's paper was thrown open for general discussion and questions.

Dr. Cyrus C. Sturgis, Professor of Medicine at the University of Michigan, Ann Arbor, was the essayist at the January 19 meeting, which was also held at the Ohio Valley General Hospital. His subject was "Diagnosis and Treatment of the Macrocytic Anemias." Discussion was opened by Dr. R. J. Snider and Dr. W. M. Sheppe.

RUSSELL C. BOND, *Secretary.*

GREENBRIER VALLEY

The regular meeting of the Greenbrier Valley Medical Society was held at the Greenbrier Hotel in Ronceverte, West Virginia, December 12, 1933. The retiring president gave a short address, and minutes of the last meeting were read and approved. The program was opened by a clinical case report by Dr. A. G. Lanham. Discussion was opened by Dr. A. D. Ferrell. The essayist of the evening was Dr. D. G. Preston who read an interesting paper on "Rocky Mountain Spotted Fever, Eastern Type." Discussion opened by Dr. Lanham.

New members elected were: Dr. A. C. Damron of Rainelle; Dr. Floyd H. Randall of White Sulphur Springs and Dr. O. P. Edds of Rupert.

The following officers for the coming year were elected: President, Dr. R. E. Baer, of White Sulphur Springs; vice-president, Dr. W. E. Myles of White Sulphur Springs, and secretary and treasurer, Dr. A. G. Lanham of Ronceverte.

A. G. LANHAM, *Secretary.*

WYOMING COUNTY

The Wyoming County Medical Society met in the June Tolliver Hotel, Mullens, West Virginia, January 11, 1934. Election of officers resulted in the following men being elected for the ensuing year:

President, Dr. D. D. Wilkinson, Wyco; Vice-president, Dr. J. O. Robins, Glen Morrison; secretary and treasurer, Dr. Ward Wylie, Mullens, West Virginia. Board of Censors: Dr. J. O. Bailiff, Mullens; Dr. B. W. Steele, Mullens, and Dr. F. H. Penn, Coval, West Virginia.

The new members elected to membership were Dr. Thomas Nale, Glen Rogers; Dr. F. H. Penn, Coval, and Dr. J. O. Bailiff, Mullens.

Following the annual report of the secretary and disposing of some business matters, a general discussion was held by the Society on the "Medical Care of the Indigent", many interesting facts being brought out through the discussion.

It was decided that the next meeting would be held on February 8th. The meetings will be held monthly until such time as the society sees fit to change.

WARD WYLIE, *Secretary.*

MERCER COUNTY

The annual dinner meeting of the Mercer County Medical Society was held at the West Virginian Hotel, Bluefield, on December 21, 1933, with 72 members and visitors present. A majority of the members of the society were accompanied by their wives, and there were a number of other visitors from Tazewell and McDowell counties.

Following the banquet, the medical meeting convened. No scientific program was arranged. The president appointed Dr. R. O. Rogers, Dr. A. H. Hoge, Dr. B. S. Clements and Dr. J. R. Vermillion as the County Medical Relief committee.

New members elected at this meeting were Dr. J. S. Ayers, McComas; Dr. Frank Holroyd, Princeton, and Dr. C. T. St. Clair, Jr., Bluefield. Dr. A. C. Van Reenen was accepted as a transfer from McDowell County.

New officers for 1934 were then elected. Dr. J. I. Markell, Princeton, was elected president to succeed Dr. C. J. Reynolds. Dr. D. L. Hosmer, Bluefield, was elected vice-president, Dr. R. R. Stuart, secretary and Dr. H. G. Steele, treasurer. Dr. Frank Holroyd and Dr. Charles St. Clair, Jr., were elected on the Board of Censors. Dr. W. H. Wallingford, Princeton, was elected delegate to the State Association to take the place of Dr. B. S. Clements, who was recently elected to the Association Council. Alternates elected were Dr. J. I. Markell and Dr. H. R. Connell, Bluefield.

R. R. STUART, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular December meeting and annual banquet and election of officers for 1934 at the Aracoma Hotel, Logan, on the evening of December 20th with 21 members and visitors present. The secretary-treasurer gave his financial report which was accepted by the society with compliments. He also gave a report of the activities of the society for the past year. He stated that out of a membership of 32 paid up members for the whole year, and one new member of only three months standing, and two honorary members, or a grand total of thirty-five, the average attendance at the meetings throughout the past year, a regular meeting being held each month, was 17 members, and that together with visitors and guest speakers, the average attendance was 22 at each meeting.

After discussion of several business and professional matters the election of officers was held with results as follows: President, Dr. Fred E. Brammer, of Dehue; vice-president, Dr. Harold Van Hoose, of Whitman; secretary-treasurer, Dr. C. L. Border, of Logan; and member of the Board of Censors, Dr. J. O. Hill of Logan.

FRED E. BRAMMER, *Secretary*.

THE STORY OF CHILDBIRTH

The Story of Childbirth, by Palmer Findley, M. D., Doubleday, Doran & Co., Inc., Garden City, N. Y., Pgs. 361. Illustrated with 64 halftones and 48 line drawings. Price $3.00.

The author is one of the outstanding obstetricians and gynecologists of the United States. His studies and years of experience in practice fit him for the preparation of such a book as this.

It seems to the reviewer that one grave error has been made in the preparation of the material. The book is, it would seem, intended for the lay reader, yet the author has, in numerous instances, entered into arguments pro and con, as if the readers were physicians. This is especially to be noted in those chapters on Martyred Mothers. The Lost Art of Obstetrics, and Birth Control. One has difficulty in understanding how much in these chapters will do more than confuse and alarm the average lay mind, especially that of the prospective mother.

We cannot but call attention to a mistake in facts as appears on page 128. The statement is made that "West Virginia has no mid-wife law, yet 7000 untrained women are delivering forty per cent of the population." The facts are that there are 400 registered mid-wives. In 1930, mid-wives reported 7.8 per cent and other than physicians or mid-wives 1.9 per cent of the births,—1931 mid-wives 8.5 per cent, others 1.8 per cent, and 1932 mid-wives 10.3 per cent, others 2.1 per cent. This error could have been avoided by consulting the Commissioner of Health. It will be given credence, however, because of the author's high standing.

The book, with the criticisms above has much to commend it, for the author banishes the superstitions regarding pregnancy and the mistaken ideas so prevalent even yet. That portion of the text dealing with pre-natal and post-natal care are particularly to be mentioned because of the sound advice given to women, and the reasons for them. To some patients this work can be conscientiously recommended for the advice contained, to others it should not be. Much discretion will be needed in this respect.

J. R. B.

GENERAL NEWS

THE COMING STATE MEETING

Plans for the 1934 meeting of the Association at Huntington on May 14, 15 and 16 are rapidly nearing completion. The Committee of Scientific Work, headed by Dr. R. J. Wilkinson, has practically finished its work and final details for the meeting are now being worked out by the Cabell County Medical Society. The last meeting of the Scientific Committee was held at Huntington on January 18 and the general scientific program was finished at that time.

One of the features of the Huntington meeting will be the afternoon clinical conferences which will be conducted under the auspices of the Cabell society on the afternoon of May 15 and 16. On both of these afternoons there will be but one speaker on the general scientific program. When the afternoon programs close the clinical conferences will be conducted informally for all interested doctors in attendance.

It is understood that the Cabell County Society is also making plans for a dinner dance and floor show for the last evening of the Convention, rather than the usual Convention banquet. A special committee of the Cabell Society is now working on this plan.

Among the outstanding out-of-state speakers who have accepted invitations to appear on the Huntington program are Dr. Olin West, General Manager of the American Medical Association; Dr. Russell Haden of Cleveland; Dr. W. J. Aycock and Dr. C. F. McKhann of Boston; Dr. W. B. Morrison of Columbus, and Dr. Paul White of Boston. The complete program will be announced in a subsequent issue.

A. P. H. A. MEETING

The American Public Health Association announces that its Sixty-third Annual Meeting will be held in Pasadena, California, September 3-6, 1934. The Western Branch of the American Public Health Association, with a membership of more than 1,200 from eleven western states, will hold its Fifth Annual Meeting at the same time.

Dr. J. D. Dunshee, health officer of Pasadena, has been appointed chairman of the local committee on arrangements. He will be assisted by Dr. John L. Pomeroy, president, and Dr. W. P. Shepard, secretary of the western branch, and other prominent public health authorities on the west coast.

1933 MORBIDITY REPORT

The morbidity report for West Virginia for 1933 has just been compiled and released by the State Health department. As usual influenza led the list of communicable diseases with 66,057. Unusual and rare diseases in this state included six cases of encephalitis, one case of leprosy, one of malaria, 6 of pellagra, one of tetanus and one of typhus fever.

There were 1649 cases of diphtheria reported during 1933. Kanawha county led the list with 209 cases. McDowell county was second with 140, Raleigh third with 119 and Cabell fourth with 105. There were nine cases of hookworm, 50 cases of cerebro-spinal meningitis, 93 cases of poliomyelitis, 2875 cases of scarlet fever, 966 cases of typhoid, two cases of tularemia, two cases of undulant fever and 55 cases of smallpox.

OHIO COUNTY BROADCAST

A series of 22 radio broadcasts for the purpose of educating the public along the lines of cancer control was inaugurated over Station W. W. V. A., Wheeling, on January 25. The program is being put on by members of the Ohio County Medical Society under the auspices of the American Society for the Control of Cancer. Broadcasts will be given each Monday and Thursday evenings at 8:15 o'clock and will continue for 11 weeks.

The cancer control broadcasting program is being put on not only for lay education and early diagnosis but also to combat false and misleading information put out by disreputable commercial firms and quack doctors.

THE MERCER COUNTY PLAN

For the guidance of the various county medical relief committees, the liaison between the county societies and the county relief administrators, we publish below portions of a report recently submitted to the Mercer County Medical Society by its medical relief committee. The Mercer County committee has done its work well and has received only the best of support and coöperation from the Mercer County Administrator. Their report should be of considerable interest to the members of the profession:

"Your committee appointed at a former meeting in the interest of medical relief had a conference on January 20, 1934, with Mr. Jess W. Easley, County Emergency Relief Administrator, and report the following results:

"A schedule of fees for medical relief, aiming at uniformity throughout the state, has been agreed upon by the State Emergency Relief Administration and the Medical Relief committee of the West Virginia State Medical Association. The main purpose on the part of this committee was to get in operation here in the county the fee schedule agreed upon for the state at large. Mr. Easley, the local administrator, was most coöperative and readily agreed to the fees as prescribed.

"It should be understood, of course, that the fee schedule applies only to those people and their dependents who have no means whatever of providing medical relief. Any licensed physician may provide the needed service and apply for payment out of the relief fund administered by Mr. Easley. Mr. Easley himself is disposed to leave the question of indigence to the family doctor, and this gesture of confidence should be rewarded by every doctor using the greatest care in not including any case except where the incapacity to pay is entirely evident. Any service required under the medical relief plan should be reported to Mr. Easley or to one of his assistants in the relief program.

"In the conference the local relief administration itself was seeking advice as to medical procedure in two projects which are being carried out in the county. One had to do with nutrition and health for school children and the other with nutrition and health for pre-school children and adults. In the former project, besides providing food for undernourished children, an earnest attempt is being made to detect health defects and eradicate or correct them where possible. The method of procedure was discussed in detail. At the present time several nurses are employed throughout the county by the local relief administration, and it was agreed that these nurses in their inspection of school children should single out those children who appeared to be undernourished or who apparently had defects. Without imparting any information about any possible defects, such defective children are to be given cards with specific directions to report to their *usual family doctor*. The inspecting nurse will determine if the parents of the child can provide necessary medical attention and that fact will be indicated on the child's card. In any event, the family doctor examines the child so referred and makes recommendations according to what he finds. If the parents of the child cannot provide a fee for this examination, then the family doctor may make a charge of $1.00 and the relief administration will pay this amount to the examining doctor. If the family doctor finds some diseases process or defect, then on his recommendation (provided the parents are unable to provide medical care) certain operative or other procedures may be arranged and paid for by the relief administration. The same rule shall apply in the case of health and nutrition projects for pre-school children and adults.

"The fact was emphasized in the conference that the very marked concession in fees on the part of the medical profession was for the period of the emergency only. The committee takes this opportunity of stating to the doctors of the county that the relief administrator, Mr. Easley, is fully coöperative and is desirious of safeguarding in every way the interests of the medical profession, and we recommend that every member give his wholehearted support to the medical relief program."

FROM OTHER JOURNALS

STATE LABORATORIES

The relations of the clinical pathologist with the public are not simple, nor are they easily defined.

In other years we have tried to put into words our ideals of service; to clarify in our own minds our relations with the laity and with our fellow physicians, and to correct by education and organization evils which we have seen were threatening the welfare of the profession. We have expressed our desire to serve as consultants; we have discouraged the control of clinical laboratories by technicians; we have deplored the doing by hospital laboratories of work in competition with independent clinical pathologists; and some of us have been disturbed by the encroachment of Public Health laboratories upon the diagnostic laboratory service which the practicing clinical pathologist is prepared to furnish.

One year ago your Committee on Public Relations, its chairman having had successful experience in opposing an overzealous State Laboratory, presented suggestions which were adopted by the Society, and were recommended to its Counsellors for use in the various States where State Laboratory competition was annoying.

Your present Committee believed that its first duty was to find out what had been done by the Society's Counsellors in carrying out the recommendations made last year. Letters addressed to each of the forty Counsellors brought twenty-six replies

and a significant variety of information. The details given would extend this report beyond reason.

In several States the battle has been carried on vigorously. The methods have varied according to the local situations and the personality of the combatants.

In all of the States heard from the State Laboratories are, or have been, doing more or less diagnostic work, not limited to communicable diseases. Reduced appropriations for public health work have made retrenchments necessary, but the practicing physician wants to save expense for his hard-pressed patients. This tends to keep up the volume of work sent to State Laboratories and the directors say they dare not refuse to do work sent to them. Some of the States have a population so distributed that no private laboratory service is available for many communities and the State help is really needed. In still other commonwealths so many clinical pathologists have been forced out by State competition, or by other conditions, that the few who remain can keep profitably busy with types of service which cannot be given by technicians or by an impersonal laboratory.

Several reports indicate that State Medical Schools may tend to join forces with Public Health Departments, and influenced by common ambitions develop an embryonic form of State Medicine with free laboratory service an early result.

Two approaches to the problem have been used by those who agree that there is a problem. The militant pathologist uses his political or persuasive skill and tries to secure an executive or a legislative order restricting Public Health laboratory service or a Commission to supervise such service. This has been done successfully in Indiana and Dr. Rhamy has told the Society how it was done. California has solved its difficulties in a different manner. In at least three other States somewhat similar attempts have so far failed to get results. Groups of physicians avowedly opposed to and fearful of State Medicine have nevertheless voted against measures which would curtail State Laboratory diagnostic services. Legislators and State executives are sometimes not sympathetic with measures designed to protect an unwilling electorate.

The non-militant fraction of the Counsellors reporting have favored, some very decidedly, a program of professional improvement for ourselves, and an educational program among the members of State Medical Societies. They argue that the improper use of State Laboratory facilities is due as much to the thoughtlessness or lack of vision of the physician who supplies the work, as to the desire of the laboratory director to increase his own opportunity for service.

The question remains a many-sided one. We are presenting, as a supplement to this report, a group of resolutions which, at the discretion of the Society's Counsellors may be used by them as a guide in presenting this subject to their State Medical Societies.

The American Society for the Control of Cancer has suggested that there should be in each State at least one tissue pathologist thoroughly competent to recognize malignancy. This suggesion implies, and correctly, that not all pathologists who undertake to diagnose tissues are expert in the recognition of malignancy. It also implies that someone is to certify to the competence of at least one surgical pathologist in each State. This Society is vitally interested in any measure which will insure an earlier and more accurate diagnosis of cancer and should be able to furnish and certify proper pathologists for tissue diagnosis. We should encourage thorough special training for tissue pathologists and a minimum amount of supervised experience before independent diagnoses are accepted.

Two of the States reporting already have Cancer Commissions, and one is doing much in offering training and encouragement to the practicing clinical pathologists. State or district pathological conferences modeled after those already being held in California can well be arranged in many parts of the country.

It is fitting to mention in this report the work done by the Committee on the Costs of Medical Care. The Committee in its report has given deserved recognition to the value of laboratory procedures as aids in diagnosis. It calls attention to the increasing use of the laboratory as the patient's economic status rises; and that the amount of laboratory aid used even by the most prosperous group falls far below the ideal. The majority report then goes on to state repeatedly that laboratory service is a proper public health function; to list "laboratory technicians" as an essential part of proposed free medical services; and to suggest that under the new deal the general practitioner "could continue his present functions in much the present method but would utilize extensively diagnostic clinics or State Laboratories." The first minority report in cautioning against the "constant temptation in many fields to permit technicians to perform duties en-

tirely unjustified by their knowledge and training" agrees perfectly with the frequently expressed attitude of this Society.

Much emphasis has been placed upon a statement that it is laboratory charges which make medical care cost more now than it did in the nineteenth century. This is at least partial truth. We believe that the added immediate expense often results in an ultimate saving. With medical economists hunting industriously for ways to fit proper medical care into the budgets of all economic groups, we will doubtless be compelled to work with them for a solution or else risk the forcing of arrangements made without our help. The public must be served.

As a definite program for our membership in its public relations we would recommend:

(1) The continued maintenance of the highest professional standards in our own work.

(2) The wise use of our influence to encourage legislation which will help preserve efficient laboratory service for the medical profession.

(3) Wider contacts between our members and other physicians to the end that they, as our associates, may know that as medical consultants and laboratory directors we are worthy of our hire.

(4) Active coöperation with all attempts to furnish more accurate tissue diagnosis.

(5) An official offer of coöperation by this Society in any organized plan for adjusting the economic side of medical care to the national budget.

Resolutions Concerning State Laboratories.

WHEREAS, It is the recognized purpose of the Boards of Health of the various States to conserve the public health by measures for the prevention and control of communicable diseases, and

WHEREAS, Laboratories under the direction of many State Boards of Health have extended their activities beyond this field, for various reasons, and

WHEREAS, It is believed that the welfare of the public and of the medical profession will be best conserved if the activities of Public Health Laboratories are confined to measures for the prevention and regulation of communicable diseases, and to laboratory service for the indigent sick and for legal wards of the State,

Be It Resolved That two propositions be recommended for the consideration of State Medical Societies.

1. That the furnishing of general diagnostic service by State Laboratories tends to prepare the public conscience for the acceptance of added varieties of State medical practice.

2. That while the cost of true public health laboratory service is a legitimate governmental expense, the extension of this service into the field of general laboratory diagnosis is an unnecessary and unwarranted burden upon the taxpayers of the State.

These two points for criticism in the State Laboratory situation are very apparent in clinical pathologists and are worthy of consideration by the entire medical profession. It is unwise to ask the State to practice medicine in the laboratory unless we are willing for it to spend still more public money and practice medicine in the ward and in the operating room.

The State Medical Societies can, and we believe they should, exert a powerful influence in keeping the demands made upon State Laboratories within the limits of truly public health functions. The Societies also can encourage the State Boards of Health to keep general diagnostic work out of their laboratories by regulation, and to require that each specimen from an indigent patient be accompanied by a card signed by both physician and patient. On this card the patient shall state: "I declare on my honor that I am financially unable to pay for this laboratory test and I know that the State Laboratory makes no charge for acid tests." The physician's statement shall read: "I state, on my honor, that this patient is financially unable to pay, and that I am making no charge for my services to this patient."

C. W. MAYNARD, *Chairman.*

Motion made and seconded for acceptance of report. Carried.

It was further moved and seconded that a copy of this report be sent to each Counsellor of the Society, the American Medical Association, the American Surgeons, American College of Physicians, Secretaries of the State Boards of Health and Directors of the State Boards of Health. Carried.

Moved and seconded that a letter be sent to the Presidents and Secretaries of the State Board of Health who have contributed by their recent actions in the movement to withdraw services in the general field of clinical pathology and have attempted to restrict their activities to strictly public health problems. Carried.—*American Journal of Clinical Pathology.*

OVERTRAINED DOCTORS

Again is heard the plea for humanities rather than mechanics where medicine extends its provinces.

Contention is made with keen insight that the "too new-fashioned doctor" knows entirely too much about the end of fatal diseases and not enough about their beginnings.

This is true enough. In the rapid-fire production of doctors by well-equipped medical schools the profession is getting a double-dose of doctors. But how about providing a few physicians?

There is an elegant disdain about a large proportion of our new acolytes of Aesculapius. This is less their fault than that of the system that breeds them. In all the bulk of research and discovery and theory and practice, somehow there has been much befogged the sense of human-ness. Truly enough "Fellowship in pain divides not smart, nor lightens aught, each man's peculiar load," but such fellowship undeniably bears the fruit of such knowledge, of such fellow discernment as turns the physician's skill into veritable medical magic such as only true pansophy can flaunt.

Not everything new is wrong, any more than everything old is right. And vice versa. The foundation stones of medical practice bore elements of strength and sagacity that it is well to remember.

The great modern drug houses with their accurate and convenient dispensing of standard formulae, removed from the physician his mortar and pestle.

Laboratory findings and institutional care remove from the physician that personal deftness of manipulation and perspective that the chef calls cunning when he makes a sauce, the sculptor art, when he pats his clay or wields his chisel with swift incisiveness.

It is sad but true, but the great pharmaceutical firms, with their alert medical and chemical staffs through their very efficiency debauch the doctor from his kingdom. It would be interesting if possible to secure accurate data upon what proportion of prescriptions are written that deal with fundamental drugs in themselves proportioned to a patient's needs or from those drugs in combination as sold in various patented pharmaceutical preparations, only too often far more expensive than analgous, simple and equally efficient preparations found in the pharmacopeia.

The great pharmaceutical companies render a rare service to the physician and to mankind by their exquisitely efficient auxiliary service to the practice of medicine. But at its best it can only be auxiliary service, and when physicians, through ignorance or what is worse, indolence, put the pharmaceutical service above their own knowledge of therapeutics then indeed does the tail begin to wag the dog with a force that is folly worse confounded.

Many of the preparations sent out by the great pharmaceutical houses are veritable Chesterfieldian combinations of curatives, such as their elegance and refinement of ingredient. By them, even the virile castor-oil becomes a pleasure to the palate. Naturally such things are expensive and "add-up" in the sum total of what it costs to make the sick well. Their advance over negligently prepared prescriptions written in the best of faith by an expert physician and only too often carelessly compounded by lax or inattentive not to say inefficient druggists, admits of no argument, much less criticism. But there are times when these high priced pharmaceuticals could be dispensed with, and when the doctor who is a breath ahead of tomorrow in medical modes and manners, might work his own intelligence instead of handing the job over to the pharmaceutical house and enjoying the usage of proprietary formula. If the general public in the United States is the most patent medicine and nostrum minded public in the world, then in all fairness let it be admitted that the United States Medical profession has a keener yen for patented pharmaceuticals than physicians anywhere else in the world.

There are far too many young physicians who come out duly sheepskinned but handicapped by a lack of training in materia medica, without having had a course in applied therapeutics, without a course in prescription writing and with scant if any knowledge of the pharmacopeia.

With truth do many of the older practitioners accuse the neophytes of an inability, or would you call it a lesion in knowledge?—to increase weight in a patient by dietary modifications, nor how to increase an appetite nor how to discriminate in the usage of the milder laxatives nor how to modify diet, treatment, or anything else to the idiosyncrasies of the individual patient. He is this young man of high purpose and modern training, a cog himself in the handicaps of all products of the great machine age. He is becoming robotized and before long this blight will fall upon medicine itself.

Only too many full-time instructors, lacking the experience of private practice themselves, are absolutely unable to give to their students the ability to recognize the symptoms and signs of incipient disease and the treatment of ordinary ailments. For these young men, in far too frequent instances, the curative care lies in attendance upon the final stages of fatal diseases when brought to bed in hospitals or other institutions. There is no aptness and much less ability in following a disease in its progress from start to finish.

No less an authority than Oliver T. Osborne, professor emeritus in the Yale University School of Medicine, has looked upon these conditions and found them ill. And in his arraignment of these defects through *"The Medical Mentor,"* Dr. Osborne remarks with drastic emphasis that

"A patient cares little what you call his disease; he is interested only in what the physician is going to do to cure him, or, at least, to make him comfortable.

"This highest object of medicine, the object for which medical men are created, is now forgotten by the first-class medical schools. The patient pays the price of such neglect. Were it not for the great advances in the science of public health, which teaches how to prevent disease, and especially epidemics, the criticism of medical education today would be far more severe than it is.

"The number of persons who are ailing is increasing. This is due to the speed of our era. Men and women do not rest. Even children suffer from this speedy and restless age; too little sleep, too many side issues in school, too much competition, regulated exercises and games, noises, bright lights, dust, radios, etc., not only make children restless, but impair their health.

"Children have many infections, in spite of preventive measures, and are ailing in spite of 'sun-

(Continued on page xix)

RHEUMATIC FEVER

T. Duckett Jones (1) describes rheumatic fever as a disease of the general circulatory system. Much evidence suggests that the disease is one of hypersensitiveness to the products of streptococci. As a result of this sensitization, due to repeated infection or foci, the involved tissues over-react to small amounts of the injurious agent. There can be but little doubt that the hemolytic streptococci appear in the throat during the upper respiratory infection which usually precedes the development of rheumatic fever or a recurrence of the disease. The organism may or may not be present after the onset of the actual rheumatic fever.

The greater amount of rheumatic fever occurs between the ages of 5 and 15 years. The insiduous nature should be stressed for it is common to find the rheumatic type of heart disease without previous rheumatic history. Development of various manifestations of carditis in a child following an upper respiratory infection, fever of undetermined origin, prolonged abdominal pain or frequent epistaxis, clearly shows the variety of forms by which the active process in this disease may manifest itself. Joint pain, fever, chorea and carditis are universally accepted as denoting the presence of rheumatic fever. Acute nephritis in a rheumatic patient is equivalent to a recurrence of rheumatic fever.

Environment has been considered as important as the unknown etiological agent. The association of poor hygiene and damp, sunless, over-crowded living quarters has been widely recognized. It would seem possible that the environmental factor of most importance is that related to respiratory infection. The spread of infection through families living in unhygienic conditions and the development of heart disease in more than one member of the family have been studied. For some time it has been recognized that rheumatic fever and rheumatic heart disease were as common in more than one member of a family as was tuberculosis.

During the last quarter century the symptoms of rheumatic fever have undoubtedly changed somewhat. There are decidedly fewer cases of migratory polyarthritis seen in general hospitals. Despite this, the amount of rheumatic heart disease continues high, and the resulting deaths do not seem to have been curtailed. The prognosis especially in juvenile forms of rheumatic fever, depends largely upon the frequency of recurrences. Symptoms of these recurrences are varied and often low grade. Careful attention should be paid to upper respiratory infections, since the symptoms of a recurrence are generally preceded by such an infection. Except in more severe forms of rheumatic heart disease, the attempt to determine the extent of heart damage is less important than the determination of the presence or absence of rheumatic fever.

(1) *Am. Heart Association Leaflet, March, 1932.* *R. J. C.*

WOMAN'S AUXILIARY

CABELL COUNTY

The Woman's Auxiliary to the Cabell County Medical Society, met January 8, 1934 at the home of Mrs. J. S. Klumpp. Mrs. G. A. Ratcliffe presided with fourteen members present.

During the business meeting plans were discussed for raising funds to aid the Prenatal Clinic in supplying layettes. Mrs. W. C. Swann, general chairman for the state meeting to be held at Huntington in May announced her sub-chairmen of various committees. Mrs. W. E. Neal reported a very interesting meeting at the Council of Social Agencies.

REBA KLUMPP, *Sec. Pro Tem*

McDOWELL COUNTY

The Woman's Auxiliary to the McDowell County Medical Society held a meeting January 9, 1934, in the Appalachian Community Room, Welch, with a large attendance.

A delicious luncheon was served by Mrs. R. V. Shanklin, assisted by Mrs. C. W. Vick, and Mrs. N. F. Coulon followed by a business meeting presided over by Mrs. W. B. Stevens, president. After a review of the activities of the past year the meeting was adjourned. MRS. N. F. COULON, *Secretary*

PARKERSBURG ACADEMY

The Woman's Auxiliary to the Parkersburg Academy of Medicine met on January 9, 1934 at "The Southern". The presiding officer was Mrs. Richardson with nineteen members present. At the business meeting arrangements were made for committees to sew at the local hospitals, making bandages, layettes, etc. The meeting was adjourned to reconvene on the second Tuesday in February.

MRS. HARRY A. GILTNER, *Secretary*.

HARRISON COUNTY

The Auxiliary to the Harrison County Medical Society met on January 4, 1934 at the Stonewall Jackson Hotel with Mrs. H. H. Haynes, president, as the presiding officer. Sixteen members and one guest were present. Dr. R. C. Hood spoke to the Auxiliary on The Health and Nutrition Program which is being carried on in the Public Schools under the C. W. A. Mrs. R. B. Nutter read a paper which she had prepared on "Women in Medicine". During the business meeting the sum of $25.00 was voted by the Auxiliary to the B. F. Shuttleworth Milk Fund. The meeting was adjourned to reconvene on February 1, 1934 at the Stonewall Jackson Hotel.

KANAWHA COUNTY

The Auxiliary to the Kanawha County Medical Society met on November 11, 1933 at the home of Mrs. A. A. Wilson with twenty members present and Mrs. O. L. Aultz as the presiding officer. At the business meeting the following new officers for the coming year were elected:

President, Mrs. O. H. Bobbitt; 1st Vice-President, Mrs. D. N. Barber, Chairman of Hospitality Committee; 2nd Vice-President, Mrs. Ira Preston Champe, Jr., Chairman of Philanthropic Committee; 3rd Vice-President, Mrs. V. E. Holcombe, Chairman of Program Committee; Recording Secretary, Mrs. S. L. Bivens; Cor. Secretary, Mrs. J. E. Rucker, and Treasurer, Mrs. Robert Price.

Plans were also made for the annual tea to be given in December to which all members, wives of all new doctors and the superintendents of all hospitals in the city are invited.

The meeting was adjourned to reconvene on December 12 at the home of Mrs. Ira Preston Champe, Sr.

The December meeting of the Kanawha Auxiliary was held at the home of Mrs. Ira Preston Champe, senior, in the form of a tea to which all members, new doctors wives and superintendents of all hospitals were invited. Fifty guests were present. The tea was given in honor of the incoming officers and a delightful hour of pleasant contacts between the old and new members was enjoyed.

The Kanawha County Medical Society Auxiliary held its January meeting on the ninth at the home of Mrs. W. P. Black on Virginia Street. Thirty members were present with Mrs. O. H. Bobbitt, the new president, as the presiding officer. During the meeting Mrs. M. F. Petersen read the Constitution and By-Laws of the Auxiliary after which Master Ted Treadgold rendered two piano solos, "Dark Eyes" and "In the Garden".

The business meeting was followed by a pleasant social hour with the hostess and her assistants.

(Continued from page 95)

baths,' cod-liver oil, raw spinach, raw carrots, tomato juice, etc. Adults read the health journals, do their 'dailies,' count their calories, take vitamins, and go on diets, also to no avail.

"The medical schools of today are producing 'doctors,' but are they producing physicians? The recent M. D.s do not know how to evaluate the symptoms of incipient disease or to cure the symptoms of functional troubles.

"Students see in the hospitals only the terminal stages of chronic diseases, a few of the acute diseases, some unusual diseases, and the disturbances that may occur in post-operative cases. In the dispensaries they see an ever-moving picture of ailments of all types, but rarely ascertain the termination of even the really ill cases.

"Further, few chairs of therapeutics are still extant. The treatment of disease is supposed to be taught at the bedside. Generally, such instruction is given very meager consideration by the instructor.

"The medical graduate knows how to give transfusions, antitoxins, vaccines, and subcutaneous injections of arsenic and iron; he knows how to give cathartics, morphine hypodermics in large doses. He knows about the administration of several hypnotics, how to manage shocked conditions and, perhaps, many of the emergencies; how to treat syphilis, typhoid fever, pneumonia, some of the contagious diseases, diabetes, Bright's disease, ulcer of the stomach, and many of the terminal conditions of the serious diseases.

"Some graduates do not know how to write an ordinary simple prescription. They order ready-prepared mixtures which have the doses stated on the bottles.

"Without a course in materia medica, without a course in applied therapeutics, without a course in prescription-writing, and without any knowledge of the pharmacopeia, the young doctor begins private practice with handicaps to which older physicians were not subjected.

"The recent graduate in medicine does not know how to increase an appetite. He knows very little of the milder laxatives. He knows little about modifying the diet to suit the idiosyncrasies of the private patient. He may know how to use some of the physical therapeutic measures, but he rarely knows the harm that many of these measures may cause, even the harm of too much 'sun-bathing.'"
—*Illinois Medical Journal.*

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HOSPITAL RATES IN THE NEWSPAPERS

In the advertising columns of a great number of the daily and weekly newspapers of North (and, we understand, South) Carolina there has recently appeared a quotation of the rates charged for hospital care by Duke University Hospital.

So far as has ever come to our attention, or to the attention of any of the many who have expressed themselves to us, this is the first instance of the placing of such information, notice, advertising—whichever may be the correct word—in newspapers or other publications which go to the general public.

It has been said that this means was adopted for the protection of this hospital against having a great number present themselves for free hospital care. It occurs to us that a simple notice saying that no patient would be admitted unless specific arrangement had been made by mail, preferably by his family doctor, would have adequately met this need. The need for quotation of rates in the papers is not evident.

It has been said that the rates quoted are, even since reduction, higher than those of other hospitals in this section, and that, this being true, the publication of these rates can not constitute competition with these other hospitals.

It appears that, in making this comparison, a good many important items have been left out of consideration, items for which other hospitals must charge, but which are included in the flat combined charge made at Duke. Among these are: operating room fee, anesthetic fee, laboratory fees including charges for x-ray examination, charges for dressings and medicines. We are confident that, with these inescapable items of charge added, not a hospital in the two Carolinas can possibly supply accommodations to patients at anywhere near so low a rate as that quoted by the Duke hospital; and we do not believe any one will say these other hospitals can further lower their charges and keep their doors open.

In discussing this matter before his county medical society in the past few days, one of the most prominent and most highly esteemed doctors in our State said he saw no difference between this action and that of any doctor who might put a notice in the papers, saying that he had decided to reduce his fees to certain figures.

We regard the publishing of these rates of charge in the public prints as an exceedingly regrettable incident, one which promises little of good.—*Southern Medicine and Surgery.*

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The West Virginia Medical Journal

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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ENTERED AS SECOND-CLASS MATTER, JANUARY 1, 1926, AT THE POST OFFICE AT CHARLESTON, WEST VIRGINIA

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CHRONIC SUPPURATIVE OTITIS MEDIA*

(Observations Regarding Its Prevention; the Examination and Treatment)

By JESSE W. DOWNEY, JR., M. D., F. A. C. S.

Professor of Otology, University of Maryland, Baltimore

IT is not without hesitancy that I come before your society with a paper on a subject to which I can add little or nothing that is essentially new. But now and again it is well to take an inventory of our own and the experiences of others, regarding those diseases which though not uncommon are always baffling and difficult to treat successfully. Excluding otosclerosis and its kindred condition, the chronic suppurative ear presents, I believe, one of the most exasperating problems of clinical otology. Its very chronicity may be the evidence of failure after the most careful preventive measures; it is always, if I may speak in metaphor, a challenge to both medical and surgical combat before which one is just as likely as not to go down to defeat. I bring you simply my own observations over a period of twenty-five years, augmented by the work of those otologists which I have found most valuable.

Kerrison, in his text-book, has simply and well defined chronic suppurative otitis media as: "a tympanic inflammation giving rise to a perforation of the drum-head which shows no tendency to heal and through which there is a more or less constant flow of pus."

To a person so afflicted, such an ear, or ears, can or may be: (1) A menace to life by extension of the inflammatory process to the labyrinth, the meninges, the lateral sinus, the cerebrum or the cerebellum. (2) A frequent cause of permanent reduction in hearing. (3) A constant source of annoyance and esthetic embarrassment. (4) An economic handicap, not only occupationally, but as an insurance hazard; for it may prevent the individual from obtaining protection, or increase the premium rate to a prohibitive degree.

The disease is seldom self-limiting and the efforts of nature to affect a cure often result in pathological changes which increase, rather than decrease its dangers.

The general diagnosis is exceedingly simple, but once the generic name has been applied each case becomes a law unto itself. One of the greatest errors, both of omission, and commission, which we otologists can commit is to look into a discharging ear, record it as chronic purulent otitis media, treat it routinely and let it go at that. Each and every one of these diseasesd ears requires and de-

*Read before W. Va. State Medical Association at Charleston on May 24, 1933.

mands a painstaking examination, a careful classification and individual treatment; otherwise we cannot hope to cure, except by luck, a single case.

The persistently discharging ear is always the aftermath of one or more acute tympanic infections, some of which may go on to chronicity with startling rapidity and resistance to treatment.

It is a good plan for constructive study, to consider that always, somewhere in the transition from the acute into the chronic running ear, there has been a mistake, either general or local, in the early treatment. This may be a very erroneous viewpoint, and it certainly is not a criticism of otological practice. Undoubtedly many of these abnormal ears originate through ignorance and lack of medical care. If we include every patient under such a hypothesis, whether or not they have had prompt and efficient treatment, whether or not the mistake has been lay or medical; it is bound to make us more thoughtful regarding the treatment of every atypical acute inflammation of the tympanum and also its contributing factors, and it may bring us yet nearer to methods for the prevention of pathological changes potentially dangerous and seldom amenable to simple procedures.

It is a very encouraging fact that marked progress has already been made in the prevention of chronic suppurative otitis media not only through the efforts of the otologist and the rhinolaryngologist, but also by the pediatrician and the general practicioner working alone or in conjunction with the aurist.

Endeavors to build up the general resistance of children prone to ear abscesses, careful and well thought-out nasal operations or treatments in the same type of child, undoubtedly prevent or decrease the number of attacks of acute otitis media.

Regular examinations and the early recognition of middle ear involvements, followed by prompt and well done incisions of the drum-head during the upper respiratory infections of children and particularly in scarlet fever, measles and influenza, in which destruction of tissue may occur with great rapidity, has become a routine of inestimable value. The ear may be only a part of the clinical picture in many of these patients, but the role that it can play is seldom a minor one, and at least twenty to thirty per cent of chronic otitic inflammations are sequels of the diseases mentioned. The pediatrician and the general physician are in a strategic position to prevent such consequences and I believe that they are doing it with increasing finessé and success.

From the standpoint of the otologist, I am fully convinced that in a number of patients with acute otitis media, purulent discharge continuing after all other symptoms have subsided is sufficient indication for the simple mastoidectomy, and that the operation will prevent chronicity if its performance is not too long delayed and if particular attention is given the antral region.

Please do not think that I am advising any new or unusual procedure. You are all familiar with the operation and the class of acute or sub-acute infections that I have in mind. The initial symptoms may not be severe even in scarlet fever or measles. There is moderate otalgia; a few days of insignificant fluctuations in temperature, no mastoid tenderness, no laboratory findings of importance; but continuous and obstinate discharge. The tympanic membrane becomes less congested but remains thickened and becomes white in color. The perforation may gap and show destruction of tissue or it may diminish in size. Repeated incisions seem of no value and rapidly heal to a pin-point calibre.

We seem to forget the application of a dictum laid down by Politzer and others in the very dawn of scientific otology, that in such cases there is always pus in the mastoid antrum, with an engorgement and cell infiltration of the mucosa of the attic, the aditus ad antrum and the antrum. This does not mean a mastoiditis in the sense of the classical osseous necrosis, but it does mean that the abnormal secretions must be taken care of by a residual overflow or by absorption. The first is impeded both by the normal and morbid anatomy of the middle ear tract and the

second is a slow process at best, and predisposes the mastoid cells to a proliferative osteitis.

At operation the mastoid cells usually crumble down into a mass of softened osseous débris and hyperplastic mucous tissue. Only a few drops of pus may be found in the antrum and para-antral cells; but the mucous membrane lining of this region is always thickened and hyperemic. The operation removes unhealthy tissue and establishes free drainage, thus equalizing the fight for repair and overcoming the mechanical difficulties against which nature has been contending. The results are usually all that one can desire if an osteitis has not already been established in the epitympanic spaces.

The gross pathology in these cases has always interested me, especially in the outlying cells where the muco-periostial lining is very thin. The variations from the normal found at operation look as if the tissues are attempting to stay the inflammatory process by the conversion of a cellular vascular bone structure into one of dense consistency which will require no nutrition except that received from the outer periosteum of the mastoid process. I am aware that if we look upon the process of inflammatory repair as the cause of later alterations or obliteration of the mastoid cells it is contrary to the teachings of Wittmaack whose theory is based on such exhaustive scientific research that few of its principles can be questioned; but there are phases of the Wittmaack theory which are difficult for even the trained pathologist to explain clearly. Admitting that the eburnation of the mastoid so frequently found in adults with a chronic suppurative otitis media is a developmental and not an inflammatory process, the Wittmaack teaching also indicates that the fibrotic changes, by which an inflammatory process is overcome in the infant or partially developed mastoid of childhood, prevents further development or pneumatization, and results in either an infantile or a sclerotic or a combined cellular, sclerotic and diploëtic type of bone.

It seems to me that we are justified in assuming, that following an involvement such as I have described in infants or children, and the vast majority of these infections take place before fifteen, the pneumatization of the mastoid is stopped or greatly retarded and the pathological process is thereafter entirely confined to the middle ear area where it may persist indefinitely. This cavity within the temporal bone made up of the tympanum, the aditus and the incorrectly called mastoid antrum is not an accessory air-cell, but a physiological space laid out early embryologically. Its function is to house important and essential structures having to do with hearing. Nature, therefore, rarely if ever obliterates it in whole and seldom in part. Its muco-periostial lining is much more complicated and elaborate than elsewhere in the mastoid and its blood supply is more abundant. It can resist extension and destruction when diseased over surprisingly long periods, but its complicated anatomical and histological structures readily harbor infection and its fight for repair often favors, rather than overcomes, degenerative tissue changes.

My advocacy of the simple mastoidectomy in a certain selective type of case for the prevention of a chronic suppurative otitis media is somewhat timid, lest it be interpreted as surgical radicalism; but I feel that the opinion is sound in principle if the procedure is carried out before the establishment of a chronic as distinguished from an acute pathology. Scientifically this transition from the acute into the chronic is an immensely involved problem, but practically it may be forecast by careful clinical observations.

We all hesitate to operate with obstinate otorrhea as our only indication, because no one can formulate a set rule as to how long this may continue and recovery take place. But after a month or six weeks such an acute ear is, at least, out of the average class; and it should be watched with increasing attention to every minute change in the appearance of the drum, the perforation and the character of the discharge. If a central per-

foration is becoming larger with rounded clear-cut edges and the discharge is becoming mucous in character the patient is probably drifting into a so-called safe but exceedingly stubborn form of chronic otitis. If exuberant watery granulation tissue springs up it may be an indication of beginning bone involvement. Osseous inclusion is almost a certainty when the old perforation in the drum-head closes and a new one makes its appearance, especially if it is marginal in location, and particularly if it is Shrapnell's, or in the postero-superior quadrant of the tympanic membrane. The edges of these marginal perforation become epiderminized, whitish epithelial flakes appear in the secretion and the odor of the discharge becomes offensive. All these signs indicate that the epidermis of the tympanic membrane or of the external auditory canal has begun to enter the fight for the repair of the mucosa of the tympanic cavity and after that one may be sure that the battle has reached a crucial stage with the odds in favor of the establishment of a chronic suppuration.

Most of the text-books tell us that we seldom see the transition from an acute into a chronic purulent otitis media. No doubt this is true; but I am sure that I have watched these changes take place regardless of what in my judgment seemed most careful treatment. Perhaps early operative interference would not have cured them. I have had this also fail. I am sure that many of you have had similar experiences. Eventually my patient drifts to you, and yours to me; or finally in discouragement avoid all treatment over such long periods that they are no better off than those who have a running ear as a result of ignorance or complete neglect.

Once a chronic purulency is firmly established the patient seldom complains of anything except the annoyance or the embarrassment of the discharge. It is also an interesting fact, generally accepted, that these ears are seldom foci of systemic infections. The individual may remain in the best of health over years with no apparent lowering of his general resistance. The condition of the ear may be influenced for the worse by constitutional or metabolic diseases such as tuberculosis, nephritis, the anemias, diabetes and syphilis.

An ear so diseased is never, in my opinion, without serious potentialities. It is true that complications are most liable to occur in individuals who neglect all treatments and precautions, but dangerous extensions are not impossible in a patient under constant observation. The attitude of the insurance companies based on statistical study is cold-blooded evidence that this is not the viewpoint of the alarmist. Every ear of this type, as I said in my introduction, is a law unto itself and should be examined with the greatest care, otherwise it is neither possible to discover untoward signs or symptoms nor to choose the proper form of treatment either medical or surgical.

In every case we should try to obtain a reliable history as to: (1) The duration of the disease; (2) Whether or not it is a "scarlet fever or measles" ear; (3) Characteristics regarding the discharge, (a) continuous, (b) intermittent, (c) profuse, (d) scarce; (4) Pain or headache, its location and type; (5) A possible tendency to acute exacerbation with or without pain and fever; (6) Hearing—good, fair or defective; (7) Vertigo, severe or slight; spontaneous or after syringing; (8) General health. Fairly accurate answers to such a list of questions will be of service in the interpretation of our objective and subjective findings.

I begin my examination of the ear with an inspection of the canal without any preliminary cleansing: A question at this point as to how long it has been since the ear was cleansed, gives one a clue as to the usual amount and character of the discharge. The amount may not be of any great moment but the character of the secretion is always worthy of note. It may be divided into three types: (1) The thick stringy mucous discharge; (2) The creamy purulent discharge without much odor; (3) The thin watery secretion filled with grayish or white flakes and exceedingly foul. The first type is found in the

simple cases with central perforations, the second in those with a definite destruction of the soft tissues and a tendency to secondary infections, the third in the ears with marked bone involvement and a beginning or well developed cholesteatoma.

Having noted the character of the discharge I like to clean the ear as thoroughly as possible with dry cotton swabs. If this is not possible I wash it with a warm solution of fifty percent alcohol and again dry it. The appearance of the external auditory canal should be noted. An unhealthy macerated epidermis may be simply a manifestation of local irritation, but it plays a part in the bacterial flora and the pathology of the case, and may be an indication as to whether or not this ear will tolerate watery solutions or must be treated by a "dry" method.

The next observation is the presence or absence of polyps or granulation tissue. The presence of either is always very strong evidence of bone involvement. Polyps vary in size, as you know, from large firm growths protruding from the external auditory meatus to a minute mass showing through the perforation in the drum. Every effort should be made by careful inspection and gentle probing to locate the cite from which they spring; this may be simple if there is a definite pedicle, but much more difficult if the growth is a large flat mass with a broad base. In the latter case one must not confuse this tissue with what is thought to be a thickened inflamed drum-head. The location had character of the perforation is the next, and perhaps the most valuable objective study. It may be of any size from a pin-point to almost complete destruction of the drum-head, and may be located anywhere in the drum-head. The size is relatively of little moment, but the location is highly important. We classify them according to location as central and marginal. The former, no matter how large, are looked upon as difficult to cure but not dangerous; the latter, however small and when located in the upper and posterio-superior or posterior segments of the drum-head indicate the far more dangerous epitympanic and antral involvements and predispose to cholesteatomatous changes which increase many fold the intricacies of the problem.

It is impossible to enter into a discussion of the complex pathology of cholesteatomatous formations. Let us simply remember that a cholesteatoma is a compensatory effort of the epithelial cells of the drum-head or canal to heal a chronic suppurative ear. These epitheliel cells having entered the tympanic cavity through a marginal perforation attempt to form a protective membrane over the diseased mucosa. Occasionally it is successful but very often this membrane in turn breaks down and again reforms until the tympanic cavity becomes filled with a tumor-like mass of dead epithelial cells, granulation tissue, bone spicules and cholesterin crystals, teeming with bacteria. Such a mass grows in size by concentric layers, destroying all before it slowly but surely both by pressure necrosis and infection. The slightest suspicion of these changes in a suppurative ear was looked upon at one time as sufficient indication for the radical mastoid operation.

Recent work indicates that careful treatment in the early stages may be of more value than ill-advised surgery. I particularly call your attention in this regard to a very recent article by Joseph G. Druss of New York on the "Rôle which the Epidermis Plays in Suppuration of the Middle Ear" (Archives of Otolaryngology, April, 1933).

The inspection of the drum-head includes, of course, observations regarding the condition of the ossicles, both as to their position and their possible necrosis.

We should also note whether there is any evidence of the seventh nerve involvement and whether or not there is any spontaneous nystagmus.

The function of the ear or ears should be next examined. We should make a careful quantitative and qualitative test of the hearing. This is not only of importance from the economic or social standpoint but can be of the highest value in reaching a decision as to treatment. It is rather surprising how well a patient may hear with an ear which is

markedly diseased. In patients with bilateral involvement, it is of the utmost importance to preserve this function and it can and should be the deciding factor between treatment and surgery in many instances where the latter is not indicated by alarming symptoms. If the hearing tests shows a "dead" labyrinth it is well to try to determine whether this profound deafness is an old or a recent complaint. If recent it may indicate a beginning involvement of the internal ear in which case it is usually accompanied by tinnitus and vertigo of greater or less degree.

A very simple rotary test will be a good indication of the condition of the vestibular apparatus. One turning to the right for the left ear, or the left for the right; with twenty-five to thirty seconds of after-nystagmus is usually sufficient, unless more elaborate tests are indicated by symptoms of intracranial mischief.

The fistular test should always be carried out. It is the very simple procedure of increasing the air pressure in the canal with a Poltizer tip and air bag. If it causes vertigo and nystagmus it is almost certain evidence of a fistula in the horizontal semi-circular canal, and an indication for surgery. The test should not be repeated unnecessarily or roughly if it is positive, lest it break down protective processes and drive infected material into the labyrinth.

Following the examination of the ear, the nose and throat should be carefully surveyed. I believe that the tympanic tube should always be given attention. Inflation with the catheter after the ear has been cleaned and thoroughly dried followed by another inspection of the ear may show us if there is residual pus in the hypotympanum. It is not only of diagnostic aid but may prove a valuable part of the treatment.

The general health of the patient should not be forgotten. If there is any reason to feel that it is indicated, the individual should be persuaded to have a general examination. Tuberculosis, diabetes and the anemias should be excluded.

The tubercular ear belongs in a class by itself. In my experience it should always be suspected when the onset has been without pain, when there are multiple perforations in the drum, when the discharge is very profuse and purulent and especially when there is a profound and rapid onset of deafness. It is most likely to occur in the patient with pulmonary tuberculosis.

The blood count is not of great value except in acute exacerbations, and the bacterial flora is usually too prolific to be diagnostic. The x-ray examination is not an absolute essential except when surgery is under consideration. In surgical cases well-made röentgenograms can give us much valuable pathological and anatomical information.

Having completed a careful survey of any patient it is possible to classify the case according to the findings in one of three great groups: (1) The "safe" case in which surgery is seldom if ever indicated. (2) The "border line" case in which much can be accomplished by careful treatment but in which operation may have to follow. (3) The "dangerous" case in which the radical mastoid operation or some modification should be advised at once. Fortunately the third grouping is by far the smallest, and the second can often be carried over into the first class, if the patient is willing to coöperate.

It is well to remember, and to warn your patient from the very beginning, that a complete cure of a chronic suppurative otitis media of a duration which justifies such a classification is always problematic if complete and permanent stoppage of the discharge is to be the criterion. A "dry" ear may be accomplished in a certain number of patients but even after mastoido-tympanal exenteration the discharge may continue. We can convert a "dangerous" ear into a "safe" ear and so modify the disease process that, with reasonable care on the patients part, the condition is neither embarrassing nor an annoyance.

I am not an advocate of any one form of treatment, for again the individual factor is

of the highest importance. There are some ears which must be irrigated occasionally with watery solutions if we are to obtain a clean area. If the ear is well dried after the treatment and the fluid not allowed to collect and stand in pools I do not believe it is detrimental. Generally speaking, I prefer not to use watery solutions any more than is absolutely necessary. In some few cases water does seem to be irritating to the mucous surface, in others irrigations cause an intense vertigo. Such reactions are distinct contraindications to treatment with the syringe. In most cases my chief dependence to obtain a clean ear is 95% alcohol, and to obtain and maintain a clean ear is a necessary preliminary to any treatment.

In the first group of cases, the so-called "safe" ear, cleanliness is often all that one can accomplish. I put into this class patients with central cut-out perforations but otherwise good tympanic membranes. The ossicles may be normal, the mucous membrane of the inner wall seen through the perforation is firm and healthy looking. Hearing is good. These patients have a thick mucous discharge particularly during a "cold". Treatment of the eustachian tube is often beneficial and reduces the discharge. As a rule if these patients keep the ear clean with an alcoholic solution of boric acid there is little of which to complain. Attempts to close the perforation by cauterization of the edges and other means very frequently fail. It is worth trying if the opening is small but if there has been a large loss of tissue such measures usually fail and may produce scar tissue deterimental to hearing.

In the second group I place those patients showing marginal perforations, with or without granulation tissue but with a purulent discharge of a greater or less degree. It is by far the most difficult type to describe, for there are such a multiplicity of signs, symptoms and factors to be taken into consideration that one hardly knows how to generalize concerning the findings or the treatment.

When there is no granulation tissue in the perforation, the treatment should be directed entirely to the perforated area. I have found a very small dull ring currette of value in removing dried masses of thick secretion or cerumen from the region of the perforation, and the use of the very small attic canula indispensable for cleansing. Here again, if it is not too painful and I seldom find it so, I like 95% alcohol. Ether is also of value as a cleansing agent and is usually well tolerated. After the area has been cleaned as thoroughly as possible very gentle suction may be used through the attic canula but not suction through the external auditory canal.

Every so-called antiseptic ever introduced for the benefit, and financial profit, of man has been tried in these ears and I have used more than my share. I am not very enthusiastic over any one of them but now and then we try one that seems to help a certain case. It is necesary to be sure that the ear is gotten clean before any antiseptic is used. I have not had startling results with the iodine dusting powder lately in vogue or found it any better than boric acid powder. I have noted that this powder coats the perforations with a thick hard covering, and may delude us into a belief that the purulency is cured while it goes on beneath. I have had no experience with zinc ionization, but the recent work of Lierle and Sage (Annals of O. R. & L. June, 1932) show that the zinc solution is just as active, if active at all, without as with the galvanic current.

If granulation tissue is present it should be gently removed or destroyed after one has determined from just where it originates. The rough snaring or curretting out of a polyp is always a dangerous procedure. Much more can be accomplished by gently breaking down the granular mass with a small sharp curette or punch followed by the use of nitrate of silver, trichloracetic acid or other caustics. If the growth can not be eliminated by very simple measures, it is not very likely that any thing can be accomplished safely, short of the radical operation.

The patient's home treatment is usually confined to careful drying of the ear with cotton and the use of boric acid and alcohol dropped into the ear while reclining. At times I advise irrigations with a small amount of some simple antiseptic to be followed by careful drying and the boric-alcohol mixture.

If careful treatment is of no avail and dangerous symptoms such as pain, dizziness and discharge persist, or increase in severity, we always have the radical mastoid operation on which to fall back.

To the third class of cases belong those patients who present themselves with an ear which has for all practical purposes been destroyed. There is usually a history of neglect or one can assume as much. The canal is filled with granulation tissue, the drum and ossicle are necrotic and the tympanic cavity is a mass of granulations and grayish membrane like formations indicating cholesteatomatous degenerations. The discharge is thin and flaky and disgusting beyond words. The patient complains of recurrent attacks of pain or headache, discomfort and frequently there is a history of attacks of vertigo. The ear is functionally "dead" and a menace. In such a case treatment is useless and one must advise the radical mastoid operation.

It is not the purpose of this paper to go into details regarding the operation itself. It is indeed a radical procedure not without dangers and requiring the best of training to do it expertly and well. Much is being taught regarding its performance and to modify its technique to fit the case in hand. So long as the chronic suppurative ear exists, the well trained otologist is obligated to prepare himself to do this operation or its modifications, keeping in mind, and advising his patient, that it is done not only to produce a "dry" ear in which it may fail, but as a life-saving measure.

In summary may I say that I have brought you a page of personal experiences which have led me to believe: (1) That chronic suppurative otitis media is most frequently the result of negligence and is a disease which could have been prevented if the patient had received medical attention in the acute stage. (2) That the transition from the acute into the chronic purulent ear is usually a relatively slow process which gives us the opportunity in many instances to prevent chronicity if we recognize its imminence. (3) That once chronicity is established the ear may be dangerous and always difficult to cure, but that it can be kept safe or converted into a non-dangerous type in most patients by careful attention to details. (4) That in the presence of untoward signs or symptoms surgical interference will prevent complications though the operation may fail to cure the discharge.

Chronic suppurative otitis media is a disease of a thousand details. If I have bored you with some of no importance and neglected others of far more value, the subject is open for discussion. I shall be glad indeed if I have said those things which may stimulate an interchange of views, for then I shall feel that my paper has served the only purpose one of its kind may claim.

Discussion

Dr. C. B. Wylie, Morgantown: I wish to thank Dr. Downey for his able presentations of this very important subject. I feel that sufficient emphasis frequently is not given the treatment of chronic suppuration of the ear. If it were possible to overcome the indifference of the patients or their families of the real necessities of regular treatments, many lives could doubtless be saved, and if families of the sufferers were aware, or could be made to appreciate the seriousness of neglecting proper treatment of suppurating ear, undoubtedly a great many chronic cases could be prevented if proper treatment were instituted during the acute stage. As Dr. Downey has said, "One of the most frequent causes of a chronic suppurating ear is inadequate drainage of an acute condition." If the tympanum is either allowed to rupture spontaneously or paracentesis is done and is not sufficient to allow ample drainage, an acute condition will surely become chronic.

If practical treatment is to be instituted, a certain general program should be followed in each case. It is essential to obtain an accurate history including the onset, duration, complications, etc., of the condition. This being done we should then be

able to divide the case into two classes: Non-operative and operative. The latter will, of course, require immediate surgical intervention. With the non-operative chronic cases the treatment will include first of all attention to any infection or pathological condition in the upper respiratory tract. The nasal septum, the various sinuses, the tonsils and adenoids should all be carefully inspected. In the case of polypi an intratympanic operation followed by local treatment may suffice. Local therapy should be carried out after correction of any pathological conditions.

As Dr. Downey has said, "Cases of chronic suppurative otitis media may be classified into those that are safe and those that are dangerous." Since it is sometimes difficult to at once label a case as operative or non-operative, I prefer to use a conservative type of treatment, unless, of course, there is a clear indication of labyrinthine or intracranial involvement.

In the event of an operation, I have used the following indications:

Failure of secretion to cease discharging after systematic treatment.

Acute symptoms of mastoiditis arising from a chronic otitis and associated with chills, fever, etc.

Evidence of facial paralysis.

Presence of cholesteatoma and bone destruction as revealed by x-ray.

I recall the case of an adult who had had a chronic suppurating ear for years without treatment. Suddenly, symptoms of facial paralysis developed. X-ray showed extensive cholesteatoma in the mastoid area. Operation relieved the paralysis and the patient had an uneventful recovery. As Siebermans once said, "We must not only know how to employ conservative treatment, but we must have a clear principle as to how long we may do so."

Dr. V. T. Churchman, Sr., Charleston: In the matter of prevention of a chronic condition, Dr. Downey brought out the fact that chronic suppurating ears usually follow acute contagious diseases. A mastoid that comes on, for instance, following scarlet fever. The patient has a good resistance to that particular infection. He is just passing through an acute stage, and has built up resistance, but for some reason not good enough to throw off infection, yet good enough that he has practically no symptoms from infections in the mastoid and no temperature. The general practitioner lets this run on for some weeks ,because the patient doesn't suffer any ill effects. Frequently the family is advised to let this condition alone. As a matter of fact, it should be the other way. The family should be advised to have a mastoid operation done if necessary. I don't say that every suppurating ear that runs for two or three weeks has to have a mastoid operation.

It is a fact that Dr. Downey doesn't advise radical mastoid operation on all chronic suppurating ears. The otologists in this neighborhood, I am afraid, have sinned this way. In every chronic suppurating ear around here they have advised radical operations, when a few weeks' treatment might have been satisfactory. We seem to be opposed to treating chronic conditions in the field of otology.

Dr. J. E. Blaydes, Bluefield: Dr. Downey brings to us a most interesting and instructive review of what you may find in dealing with the chronic purulent ear. His views and mine are essentially the same, and I will only emphasize a few things which he has so well explained.

In the summary of his paper, he says that chronic suppurative otitis media is most frequently the result of negligence and could have been prevented if the patient had had medical attention in the acute stage. This is most certainly true, and I hope that I can impress the fact that in most instances when an ear discharges longer than three weeks there must be a mastoid infection. Should this discharge continue and no intervention is made, the result, of course, is a chronic condition.

I have seen patients who had had a discharging ear for several weeks and because they suffered at the time very little inconvenience from it, were told to let it alone. This advice, I am sure was not the best, because a simple mastoidectomy performed at that time would have saved both the hearing and the many discomforts that attend this distressing malady.

So if you consider that the patient's life is not in danger from a discharging ear, you must next thing of the hearing which will be destroyed if surgical interference si not resorted to. Of course, there are many, many acute mastoid infections which clear up without anything being done other than the usual treatment, and my statement is made simply to urge you not to wait too long before having this interference.

It is true that the transition from the acute into the chronic purulent ear is usually a relatively slow process and oftentimes while this change is undergoing, the patient has slipped from your hands, and does not again present himself until chronicity has completely taken place. Therefore, you must be on your guard in not letting these individuals get away before the proper measures are undertaken.

Dr. Downey (closing the discussion): Dr. Blaydes' remark relative to hearing, is a most important fact. We all know that a patient with a double otitis media hears very well so long as there is no change in the internal ear. It is surprising how well they do hear. Then all of a sudden they may become very deaf. That generally means that degenerative or congestive changes, are taking place in the labyrinth. When a patient suddenly becomes very deaf during an acute inflammation, it is a very strong indication for a simple mastoid operation.

The chronic ear is a difficult thing to cure, but we can prevent them. I think the general practitioner is doing an immense amount of good in this respect.

In regard to the radical mastoid operations, there are many ears that can be saved without radical surgery. Smith, who does some of the most brilliant mastoid surgery in New York, is very conservative in his indications for the application. And after a patient has gone all through this surgery and treatment, the ear often keeps on discharging. It takes weeks of after treatment, and then you may still have a discharging ear. The patients feel like it's useless. It does not always stop the discharge, but you can convert it from a dangerous into a safe type of ear. Whenever I can do so with safety I like to keep away from radical mastoid operations.

UNFAVORABLE REACTIONS DUE TO ANTIRABIC TREATMENT*
(Two Cases)

By F. C. HODGES, M. D., F. A. C. P.,
Huntington, W. Va.

RABIES has been known as an infectious disease for a great many years. In 1879 this was proved experimentally by Galateir and Pasteur,[1] but it was not until 1903, when Negri described certain bodies in large nerve cells from the central nervous system, that anything was found which seemed absolutely specific for rabies. Negri regarded these bodies as protozoa, and their definite characteristic morphology, evidences of cyclic development, budding, and staining qualities indicate a protozoan structure resembling members of the Rhizopoda. They have also been so regarded by Anna Williams.

The recent work of Covell and Danks[2], who employed all the recent advances in physics and chemistry, seems to refute this view. They state that the evidence is not compatible with the protozoan or organismal theories concerning the nature of the Negri bodies. The contention that they arise from constituents already present in the nerve cell as a result of the action of the virus is in agreement with their findings; but they consider the evidence for the participation of the mitochondria, neurofibrils, and the nucleoli as inconclusive. Both the Negri bodies and the smaller atypical lyssa bodies are probably formed by alterations in the basophilic Nissl substance, the fundamental ground substance of the cell, and by the addition of variable amounts of basophilic material of nuclear origin. There is no evidence that organisms on the borderline of microscopic visibility are cloaked with these cellular components in accordance with the chlamydozoal hypothesis. Others also express the view that the inciting agent is a cytotoxin.[3, 5]

Noguchi[4] proved the virus to be filterable, and claims to have cultivated from both the street and fixed virus, very minute granular and coarser bodies which on subsequent trans-

*Read before the Medical Review Society, Huntington, Jan. 4, 1934.

plantation, reappeared in the new cultures through many generations, and produced typical symptoms of rabies in dogs and rabbits. Other investigators have not been able to confirm his cultural work. However much investigators disagree as to the etiology, they are in complete accord in stating that the presence of Negri bodies in nerve cells is pathognomonic of rabies.

The virus or parasite is contained in the saliva of the rabid animal and travels via the nerve paths. Infection is possible when the skin is abraded by bites or scratches. I can find no reported case which has occurred without some sort of injury. The mere presence of infected saliva on a healthy skin surface seems incapable of causing infection.

Prophylactic Inoculations: To me, the powers of observation, perseverance, and correct deductions which led Pasteur to the discovery of the method of antirabic inoculations stands at the height of all scientific achievements. Having discovered and successfully applied the principles of vaccination by growing and attenuating the anthrax bacillus, he was forced to adopt another method to combat rabies, inasmuch as the causative agent could not be cultivated. He took the spinal cords of rabbits which had died of rabies, put them through a process of desiccation which caused such a degree of attenuation that they no longer could cause infection, and gave a series of injections; the first dose consisting of highly attenuated cords, and succeeding doses becoming gradually more potent. The protective value of such a procedure was demonstrated in dogs, to be followed, on July 6, 1885, by the successful protection of a human being bitten by a rabid dog.[5]

Methods of Preparing Cords: Since Pasteur's original method, several modifications have been devised, among which may be mentioned:

1. Pasteur's Method: The spinal cords of rabbits dying from the inoculation of rabic "virus fixe" is desiccated over potassium hydroxid for varying lengths of time, from one day, known as "one day cord" to eight days known as "eight day cord." For injection 1 cm. of cord is emulsified in 3 cc. saline solution. Pieces of cord cut off at any time and put into glycerin will retain the same strength for several weeks.

2. Harris' Method: The brain and cord from a rabid rabbit are frozen with carbon dioxide snow, followed by drying in a vacuum and pulverizing. The material is then sealed.

3. Semple Method: The rabic cord is treated with phenol to kill the virus.

4. Hogyes Method: The rabic cord is preserved in glycerin for one week, then dilutions from 1-280 to 1-120 are given; from 15 to 21 doses.

5. Smith's[6] Method: Living fixed virus, 5 mgm. to 2.5 cc. or 317 units, (amount required to produce complete paralysis of a rabbit in 7 to 8 days) after intracerebral inoculation), is obtained from the rabbit brain and ground with glycerin. The dilutions are made with phenolized saline, and sent out fresh daily. From 1927 to 1931 4,738 patients were given the complete treatment by this method with only one death, 0.021%, giving the best results of any known method. Out of a total of 13,849 patients treated not a single case of paralysis due to antirabic inoculations occurred.

A more recent application of this method is found in the prophylactic inoculation of Rocky Mountain spotted fever, in which the infected tick, the vector of the disease is ground and attenuated, and then inoculated into the subject.

Results:

These depend upon several factors: (a) Bites around the head, neck, and hands are most dangerous. (b) The bite of a rabid wolf is always serious. The mortality in treated cases is about 10%, if untreated, it is about 50%. Only about 20% of persons bitten by rabid dogs develop the disease if untreated. This is largely due to the fact that the saliva is often caught in the clothing; thus no actual inoculation occurs or the bite may have been too slight to permit the entrance of the virus; or the cauterization of the wound may have destroyed it. With treatment, the mortality of those bitten about

the face or neck is 1.25%, of those on the hand, 0.75%, of those in other parts of the body, about 0.2%[7]. (c) At least three strains of rabic virus have been identified.[8] If an homologous strain of antirabic virus is not used, the results are not so good. Fortunately the Pasteur strain predominates, so usually the correct antirabic strain is employed. There is some cross immunity between different strains.[9] (d) It is of great interest to note that certain animals are highly susceptible to rabies, but do not transmit it in nature; for example, the rat.[10] The reason has not been proven.

Treatment: Bites classified as dangerous should receive the full course of 21 treatments, with two doses on each of the first three days. Bites less dangerous should receive one injection daily for fourteen days. Some variation in these doses is to be observed in vaccines of certain types, which is always stated on the container. Children over four years receive the same dose as adults. Those under four should receive half adult doses.

The quantity of active antigenic material injected is of the utmost importance in establishing immunity in antirabic treatment.

All bite wounds made by rabid animals should be cauterized with strong nitric acid[3] as soon as possible, at least within 48 hours. Phenol, iodine, mercurochrome and such are unsatisfactory.

Contraindications: There are practically none." Some individuals are hypersensitive, in which case care and judgment must be exercised. In those patients who have been bitten by a rabid animal, and who prove to be hypersensitive to treatment one must consider the degree of reaction, its early or late appearance, the kind of biting animal, the location of the bites, which will be later discussed, in order to determine which would be of less danger; to continue treatment and run the risk of a paralytic accident, and possibly death; or the risk of the development of rabies.

Reactions: Usually the injections are followed by slight, or even marked soreness. Erythema and edema, with pain, tenderness, malaise and slight fever may occur usually on the seventh or eighth day and again about the fifteenth day.

Most courses of antirabic treatment are given with little or no appreciation of possible ill effects or of precautions which may lower the incidence of such accidents, which occur in a small percentage of cases. Most standard text books do not even mention such complications.

That a distinction between the paralytic form of rabies and paralytic accidents due to the treatment has been recognized since 1888. The paralysis occurs during or shortly after treatment, thus missing even a short incubation period of rabies. Clinically, these accidents are divided into three forms: (1) Ascending paralysis of the Landry type. (2) Dorso-lumbar myelitis, and (3) Isolated peripheral nerve paralysis, such as facial, arm, or leg paralysis or disturbances of the sphincters.[12]

In 1927 following the first International Conference on Rabies, Remlinger collected 329 cases of paralytic accidents in 1,164,264 persons treated. The mortality for persons developing paralytic accidents is about 16%, and of all persons inoculated, 0.0028 per cent, or one in 3528.[13]

Since this report, 12 additional cases have been studied, which with the two here reported, makes 14, of which seven recovered and seven died. There is no way of telling what percentage of inoculations this represents.

The earlier the appearance of the accident the more severe the symptoms. In the Landry type the mortality is about 30%, in the dorso-lumbar type, 5%, in the peripheral group, none.

Proof is ample that there is a real distinction between rabies and paralytic accidents due to antirabic inoculations. In the Cairo[14] service seven fatal accidents occurred, in three of which an autopsy was done. Brain emulsions were injected into monkeys and rabbits both intramuscularly and subdurally, without producing rabies. The authors, after excluding the possibility of either a street or

a fixed virus, held to the assumption that a toxin was the causative agent. The effects of injections of normal rabbit brain were studied. Some died of obvious infections; four with paralysis, but no lesions of any degree were found and no cause for paralysis found after diligent search.

The work of Stuart and Krikarian[15], seems to show that the paralytic accidents are specific anaphylactic responses to the cord or brain substance, which serves as the medium in which the rabies virus is suspended. It is to be expected that further refinement of the product with separation of the noxious substances, offers the greatest promise of a vaccine free from dangerous potentialities.

Another possibility to be considered is that the rabbits used to produce the vaccine harbored a neurotropic virus which passed with the injection into the treated human. This involves a hypothesis totally unsupported by any evidence. The theory that paralysis is due to the liberation of an endotoxin liberated from the virus is confronted by the same objection, although the clinical manifestations suggest a toxic origin. The possibilities that the defensive anti-bodies are responsible; or that there is a personal predisposition to the injections have been considered; both however, lack final proof.

Pasteur Institutes are agreed that overexertion during the course of the injections plays an important rôle in precipitating the neurological consequences. Hence it is recommended that patients remain at rest during the treatments, and that the injection be discontinued with the appearance of paralytic symptoms.[16]

Cases of such paralytic complications as have been frequently described with many fatalities occurring during or following treatment, should contraindicate its use where definite exposure to a rabid animal can be excluded. However, the relative infrequency of such complications should lead us to carry out antirabic treatments whenever the possibility of exposure to rabies exists, in view of the invariable mortality of rabies itself; and of the great protection conferred by the treatments.

Pathology: A great variety of findings in the paralytic accidents has been reported by different observers. McKendrick[17] found the cord to show widespread nerve destruction with microglial proliferation and perivascular infiltration with polynuclear cells. The anterior and posterior horns were equally affected, thus differing from poliomyelitis. Remlinger described the characteristic pathology as edema of the fibres with swelling and absorption of the axis cylinder.[18] The vessels are surrounded with an embryonic zone of small elongated cells, with a similar condition of vessels in the gray matter. Negri bodies were never found, and animals inoculated failed to develop rabies.

Bassoe and Grinker[19] point out the similarity of the changes in paralytic accidents with those of a verified case of rabies beginning one year after a bite. There is also a great similarity of findings with encephalitis induced neither by rabies nor antirabic inoculations, conditions which sometimes follow smallpox vaccination or chickenpox.

Reisman, et al,[20] found in autopsies on two fatal cases of rabies, the following distinguishing characteristics: (a) absence of meningeal reaction; (b) predominant involvement of the gray matter; (c) non-purulent nature of the infection consisting of lymphoid and plasma cells, and large mononuclear elements; (d) glial proliferation of a diffuse and focal nature; and (e) a lack of hemorrhagic softenings. The difference between various members of the group; rabies, poliomyelitis, epidemic encephalitis, reaction to smallpox vaccination, and Borna disease in horses are those of degree.

Incubation Period: In dogs this is 14 to 60 days, perhaps as short as 10 days, depending on the location and severity of the bite, the dose of virus injected, and the kind of animal responsible for the injury. In man it ranges from 14 to 90 days, sometimes longer.

An unusually long interval was reported by Hojare.[21] A young lady in Syria was

bitten on the right leg on Sept. 2, 1931. The wound was carbolized the same day and she was sent to the village to receive antirabic treatment. On the way, she was seized with a fit, which was interpreted by her attendants as being rabies, so she was brought home without the treatments. On Nov. 10, 1932, fourteen months after being bitten, she developed typical rabies and died two days later.

Street virus may be dormant in the brain of the turtle for 207 days, and then, when inoculated into rabbits, produce symptoms in 9 days.[22]

Clinical Features: Children and old people have a definite immunity to paralytic accidents. In Russia, where half the patients receiving the treatment were children, there were no such accidents. Intellectuals are more susceptible than those who use the higher senses to a lesser degree.

The ultimate diagnosis of the biting animal is of importance in view of the claim of some that the accident is but a form of true rabies. Some cases of accidents are reported in those not bitten at all, but who received the inoculations through unfounded fear.[23]

The time elapsing between the bite and the appearance of paralytic symptoms varies from before the tenth day to the fiftieth, with about ninety percent occurring between the eleventh and the thirtieth day. Two-thirds occurred during treatment.

A great variation in the incidence of paralytic accidents occurs with the use of different preparations of vaccine, phenolized cords and the living fixed virus of Smith showing the fewest.

The more intensive the treatment, the greater the likelihood of the development of the paralytic accident.

The clinical features differ markedly from true rabies. Spasms of the glottis and the fear of water, which Fetherston and Cooper[24] recently observed in four fatal cases of hydrophobia, and which led them to state that never was a disease more correctly named, are not typically found in the accidents.

The spinal fluid may be normal in both rabies and in the paralytic accidents. Usually, however, especially in the latter there is a moderate pleocytosis from fifty to two hundred cells the mononuclears predominating, with a moderate globulin increase. Cultures remain sterile.

Prevention: This is to be considered from various standpoints.

(a) When to Immunize—Immediately after the bite from an animal suspected of being rabid, *the wounds should be cauterized with fuming nitric acid followed by the first of the injections.* The suspected animal should be kept under observation in a strong pen for a period of two weeks. *Do not kill the animal* as it is sometimes hard to find Negri bodies in the early stage. If the search fails to reveal Negri bodies in a prematurely killed animal it becomes necessary to proceed upon clinical evidence only. If the animal lives two weeks, rabies is excluded. If it dies prior to that time and the search fails to reveal Negri bodies, or if the animal inoculations prove negative, the treatments can be discontinued. The head should either be examined immediately, or kept on ice until such time as the examination can be done.

(b) The Dog Problem—In England rabies has practically disappeared, due to the strict muzzling and quarantine imposed upon imported dogs. Muzzling, while efficient, is somewhat inhumane, and requires considerable time and care to keep the muzzles on and in good repair.

Mexico City seems to have a most practical and efficient plan. They require all dogs to be sent to the laboratory once a year for an inoculation at a cost of one peso (fifty cents), at which time a tag is placed on him. If a dog is found without a tag, he is sacrificed. No cases of rabies have developed in Mexico City proper, or in the district in several years. This method has also proved of great value in Japan.

(c) A dog bitten by rabid animals can be immunized successfully, if the owner considers him of sufficient value. Smith advises the injection of six doses or more of living vaccine, according to the size of the animal. One dose is insufficient.

The passing of laws in our state requiring all dogs to be immunized against rabies, or to be muzzled, is a much needed bit of constructive legislation; both from the public health and the economic point of view. A few years ago the incidence of rabies in uninoculated dogs in Kansas City was 4.49 per hundred; inoculated ones showed an incidence of 0.26 per hundred.

Immunity: Susceptible animals probably have no natural immunity.

The duration of immunity after treatment is not definitely known, but in man, following a complete course of vaccine it is thought to last about one or two years. The same is probably true of dogs. Hence, a person bitten by a rabid animal one or more years after immunization should be reimmunized with a complete course.

Prognosis: Although rabies is usually considered invariably fatal, I have been able to find the reports of two recovered cases. However, the details on which the diagnosis were made are rather meagre.

The outlook in the paralytic accident varies according to the type. The Lanrdy's type has a mortality of thirty percent; the dorsolumbar, about five percent; while the monosymptomatic (facial palsy, arm or leg paralysis, sphincter disturbance) has no mortality.[25]

Treatment: Paralytic Accident—As no specific is known, the treatment should be symptomtaic. Decubitus and cystitis are the most dangerous factors, hence special care should be observed in their prevention.

Rabies: Contrary to my impression, restraint of any kind is said to be unnecessary, except during a convulsion, there being little or no tendency on the part of the patient to injure others, and there is no danger of those in attendance contracting the disease.[26] The patient should not be forced to make attempts to swallow or drink.

Immuno-transfusions, the blood being obtained from donors who had recently completed the Pasteur treatment, have been used in numerous instances, but there is no proof that they are of any value.

Sedatives and hypnotics, even chloroform are used to combat the extreme nervousness and terror.

CASE REPORT NO. ONE

R. T. aged 26, a white male, washed his dog who was bitten, on July 20th, 1933, by a dog reported rabid by the Ohio State Board Laboratory. He himself was not bitten. Two days later, on July 31st, antirabic inoculations were started in the abdominal wall. He had never previously had such treatments. For several months past he had complained of headaches which were rather difficult to control. The first day of injection he was nauseated, two days later he was feeling ill; and each subsequent day the illness progressed. Each day an inoculation was given in the abdomen, being accompanied by severe local reactions, and a rigid abdomen. The eighth dose was followed by difficulty in walking, the tenth by urinary incontinence, a very severe headache, a fever of 103°, and nausea. On the thirteenth day he found deglutation difficult, and became unconscious. At this time, when he was first seen by me, the pupils were contracted and equal, with very little reaction to light. In rabies, the wide dilatation of both pupils is stressed. The spinal fluid pressure was greatly increased, cell count 108, globulin moderately increased, Wassermann, four plus. He died the night of the thirteenth day of treatment.

Opinion: Death was due to an ascending paralysis of the Landry type, initiated by the antirabic inoculations. Just what part the positive Wassermann played is difficult to tell, as we were unable to obtain a postmortem examination. Probably the headaches of which he had complained indicated a low grade meningitis of leutic origin which was fanned into activity by the inoculations.

CASE REPORT NO. TWO

C. A. aged five, a white male, was bitten on August 2, 1933 by a dog proved to be rabid by the state laboratory. Following this he was given 14 injections of the antirabic treatment.

On Octboer 2, six weeks after the completion of the treatment, he became ill with

vomiting, sleeping in short naps, then awakening. This was repeated about every 15 minutes during the day.

Examination showed a fairly well nourished child, unable to sit alone because of general muscular weakness; and in a semi-stuporous state. He was very nervous, and cried at intervals. There was a marked transitory nystagmus in all directions in both eyes, which reacted moderately to light. An ophthalmoscopic examination by Dr. Hawes showed that vision was probably not better than counting fingers at a short distance. The optic discs were much paler than normal, presenting the picture of a well developed optic atrophy, suggesting that the illness was of longer duration than was indicated by the history. The tonsils were small; the heart and lungs normal. The pulse rate was ninety, with a regular rhythm. The abdomen was normal. There was no weakness of any muscles of the extremities. The patellar reflexes were present but sluggish.

The spinal fluid showed a pressure slightly increased, cells, 2; globulin, not increased; Wassermann, negative. The blood showed polynuclears, seventy-five percent; lymphocytes, twenty percent; monocytes, four percent; eosinophiles, one percent. There were no stippled cells.

His condition gradually grew worse, so that on October nineteenth he was seen by Dr. A. A. Wilson who noted that he had evidence of a focal lesion in the right cerebrum, as manifested by a lower left facial weakness and some motor weakness of the left arm and leg, and an inability to stand or walk, the trunk muscles also being involved. The reflexes on the left were hyperactive. No sensory changes were noted.

There was no history of previous illness which might have been the starting point of an inflammatory disease of the brain, and in view of the antirabic inoculations just preceding the onset by a maximum time of six weeks, and probably by not more than two weeks, as would appear from the nerve heads, it seems logical to attribute this encephalomyelitis to the vaccine.

Sedatives in the form of luminal were given, and palliative treatment as the occasion demanded. His course was slowly but progressively downward, and he died December thirtieth, twenty-one weeks after the bite, and nineteen weeks after completion of antirabic treatment.

Summary: The etiology of rabies is due to a filterable virus, regarded by some as of protozoal nature; but by more recent observers as non-protozoal. The Negri bodies which are characteristic of the disease, are probably products derived from material which previously exists in the nerve cells.

The bite of a rabid dog, if untreated is fatal in about twenty per cent of cases; if properly treated, it is about one percent. The wound from the bite of an animal should be cauterized immediately with fuming nitric acid, followed by the institution of antirabic treatment. The dog should be kept in a strong pen, under observation for a period of two weeks. If infected with rabies at the time of the bite, he will die within this time; if he recovers, rabies is excluded. The brain should be examined for the Negri bodies which will be found if the dog died of rabies. If killed prematurely, these bodies may not have had time to develop.

In about .0028 percent of persons who receive the antirabic inoculations there develops a paralytic accident. These occur in three forms.

(a) Ascending paralysis fo the Landry type, with a mortality of 30%.

(b) Dorso-lumbar myelitis, mortality 5%.

(c) Mono-symptomatic paralyses, (facial palsy, an arm or leg or a single muscle, sphincter disturbance) with no mortality.

These symptoms are manifest during or very soon after treatment, usually between the eleventh and twentieth day; whereas rabies usually begins much longer after the bite, from the fortieth to the sixtieth day. There is no specific treatment. Possibilities of antirabic accidents should be borne in mind when giving the treatments. Precautions to be observed are:

(a) Keep the patient as near rest as possible during the treatment.

(b) Upon the appearance of a paralytic accident, stop the treatments at once. Whether to resume them or not depends upon the relative dangers of the accident and the risk of the development of rabies.

The prevention of rabies in dogs is important. The most practical methods are:

(a) The muzzling of dogs, as practiced in England.

(b) Yearly prophylactic inoculations, at which time a tag is placed on the collar, at a fee of about fifty cents; as practiced so successfully in Mexico City, Japan, and some of our own states. Uninoculated dogs are sacrificed.

This, to me, seems to be a bit of needed constructive legislation.

Two additional case reports of paralytic accident are discussed, both of which resulted in death. The first was an adult male, with an ascending paralysis of the Landry type, finally involving the medulla on the thirteenth day of treatment by antirabic inoculations. He himself was not bitten by a rabid animal, only the saliva coming in contact with the unbroken skin of his hands.

The second was that of a male child, aged four, who developed a meningoencephalitis, beginning six weeks after treatment and died twenty-one weeks after the bite of a rabid dog. The duration of the illness was three months, far longer than any case of rabies. There was no antecedent acute illness which may have instituted an encephalitis.

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EFFICIENCY OF TYPHOID PROTECTION

As a result of the work of many persons, typhoid and its close relatives, the paratyphoid fevers, are all but conquered. Soon after the discovery of the typhoid germ it was learned that typhoid is contracted only by swallowing the bacilli. From this discovery developed the modern systems of sanitation, including carefully guarded water supplies, dairy inspection and antifly campaigns.

Installation of these preventives gradually brought about control in the larger cities, but because of the expense of sanitary engineering products the country and small urban communities continued to suffer. Armies on campaign, where sources of the water supply cannot be chosen, found the fever a terrible scourge.

"If every one would fully avail himself of the preventive measures at hand," says Dr. Frederick R. Taylor in "The Conquest of Typhoid" in the February *Hygeia*, "it is probable that typhoid could almost be wiped off the face of the earth in a single generation."

CHOLESTEATOMA—WITH CASE REPORT OF A BILATERAL EXTERNAL CHOLESTEATOMA*

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A CHOLESTEATOMA is a tumor of the middle ear, the mucous membrane of which assumes a skin-like character, becomes inflamed, and degenerates. This is the definition given in Dorland's medical dictionary. There is nothing in these words which sounds very alarming or destructive, but actually cholesteatoma is a dreaded condition.

During the course of some cases of chronic, purulent otitis media a change takes place in the appearance of the tympanic mucosa. This membrane changes into a grayish-white, non-secretory membrane bearing some resemblance to the skin of the meatus. The formation is often described as "concentric", "resembling pearly growth." When the drum has been perforated in Shrapnell's membrane this process is most often seen, though not invariably. Apparently in an effort to convert the recesses of the tympanum into a dry cavity with a protective, non-secreting membrane, the epidermis of the drum and of the meatus extends into the tympanum.

This clever plan of nature to end further trouble is not always successful. Epithelium enters the middle ear through a perforation and attempts to line the walls of the antrum. Pus from necrosed bone in the mastoid process bathes this epidermis, causes an unhealthy proliferation and growth by successive layers being exfoliated. This in turn forms a mass which cannot be thrown off through the perforation of the membrane. Accumulation of this material results. Examined microscopically this mass is found to have cholestria crystals, many epithelial cells, and varying quantities of pus and bacteria.

This mass of pathological tissue is usually a powerful and destructive force, causing absorption and gradual destruction of the surrounding bone. This enlarging bony cavity has its own well-defined epithelial covering. Any discharge that may come from this growth is usually extremely offensive.

The danger of cholesteatoma is self evident; confined as it is in an inaccessible location for treatment through the external auditory canal, it is almost certain to lead to dangerous spread of infection—by absorption of bone through into the labyrinth, into the middle fossa of the brain, or into the sinus with resulting sinus thrombosis or abscess.

The diagnosis of cholesteatoma is not always easy. If material is available for examination microscopically, the presence of cholestrin crystals and broken down epithelial cells would probably indicate its presence in many unsuspected cases. The characteristically offensive odor is helpful in the diagnosis.

The treatment of cholesteatoma may be summed up in four words; the radical mastoid operation. The patient is in constant danger of osseous degeneration with intracranial complications until this condition is corrected. The operation should provide an enlarged meatal opening to make it possible properly to cleanse and to prevent further accumulation of the cholesteatomatous material.

Extension of the cholesteatoma into the Haversian canals has been demonstrated and may in part account for the marked tendency to recurrences in spite of thorough operation, according to Ballanger. E. B. Dench has called attention to the presence of small masses of cholestrin crystals without epithelial cells, the etiology and pathology of which

*Read before the Eye, Ear, Nose and Throat Section at Charleston on May 22, 1933.

are not known. He reports two such cases operated on by the radical method with good results.

Ballanger summarizes the termination of cholesteatoma as follows:

1. By epidermization, after the spontaneous or instrumental removal of the mass.
2. By forcing it through the Eustachian tube into the epipharynx or into the maxillary articulation through the anterior wall of the meatus.
3. By its breaking through the walls of the semi-circular canals (Jansen).
4. By pushing its way through the external plate of the mastoid process, and presenting the appearance of a mastoid abscess.
5. By causing necrosis of the tegmen antri and tympani, and causing death from involvement of the cranial contents.
6. By sepsis arising from the absorption of the retained secretions causing death.
7. Meningitis, brain abscess, sinus thrombosis, or thrombosis of the jugular vein with a similar result.

Cholesteatoma has occasionally been found in various parts of the body, cases having been reported in [2] urinary tract, [3, 4 & 5] antrum of Highmore, [6] esophagus, [7] cranium, and in the spine, but it is usually thought of when the term is used without further modification as a disease associated with chronic otitis media.

Echols [8] gives an interesting discussion of the experimental investigations in epithelial metaplasia.

Wilkinson [9] and Tanturri [10] report case histories of cholesteatoma varying from the usual type.

In 1920 J. Morrisette Smith[1] quoted Fingrave that there are two distinct types of cholesteatoma, the encapsulated and the non-encapsulated. The encapsulated type is a pearl-like sac contained in a cavity lined by a single layer of short columnar or cubical epithelium. These are usually the dry cases. The non-encapsulated type consists of granuloma embedded in loose lymphocytes, leukocytes, and myelocytes, in all stages of fatty and granular changes, pus, and numerous bacteria of all kinds, spicules of bone, squamous cells in loose or laminated pearls. These are usually the ones with profuse discharge.

The prognosis is usually given as bad, though Morrisette Smith [1] says it is good if operated on before any intracranial complications occur, and gives case histories in his report.

Kerrison in his text refers to "very exceptional cases in which the cholesteatomatous mass has caused such extensive destruction of the posterosuperior wall of the bony canal as to accomplish practically the mechanical results of a radical operation." He gives a case history as follows: "The patient, a man 50 years old, had suffered since boyhood from occasional discharge from his right ear. Inspection revealed such extensive destruction of the posterior wall of the body meatus that it was not difficult to remove from the antrum through the canal an epithelial mass the combined bulk of which equaled that of a chestnut. The cavity from which this was removed was apparently lined throughout with an epidermal covering which could easily be reached through the meatus. After removal of the growth, this patient was practically without aural symptoms up to the time of his death from pneumonia some years later." Bezold was among those who recognized this condition as one reasonably insuring the patient's safety.

Case Report: L. T., white male, 50 years, came to office, Feb. 1932, complaining of "wax in both ears." He had been treated by an excellent otologist while on a trip a few days before who had removed some "wax" and told the patient to return, saying that the wax was hard and impacted and required further treatment. He had been using "drops" in the external canal as instructed but no improvement had been noted. In fact there had been some increased tinnitus and sensation of fullness and pain. He later returned home and symptoms continued .History was given of having trouble with his ears all of his life and worse in the past month. About 1914 he reports that he had a large amount

of wax removed. Some deafness was reported.

An examination of the external canals showed dark brown material resembling wax. The characteristic odor did not accompany this diseased ear. An effort to remove it caused much pain and the material looked flaky. Section examined microscopically by the pathologist was reported "cholesteatomatous material." Culture showed pure culture of staphylococcus albus, from both left and right ear.

After many attempts, each of which was very painful, both ears were cleaned out leaving a large, smooth-surfaced cavity.

Functional tests on admission were: Right ear—loud watch (normal about 36 inches) heard from right ear only one inch from ear. Rinne negative. Thirty-five seconds bone conduction, no air conduction. Low tuning fork not heard, high pitch heard well. Tuning fork heard 45 seconds. Could be heard 55 seconds additional time by normal ear. Left ear: loud watch heard 8 inches from ear. Rinne bc 30 sec., ac 30 sec. Low fork heard faintly. High pitch heard well. Tuning fork heard 55 seconds. Heard 55 seconds additional time by normal ear.

General physical examination negative except chronic maxillary sinusitis and chronicly diseased tonsils. Urinalysis negative. Hgb. 80%, leukocytes 10,000, small lymphocytes 20, large mononuclears 6, transitional 2, polynuclear neutrophiles 71, eosinophiles 1, blood Wasserman negative.

Neither the right nor left ears discharged pus nor were any epithelial cells thrown off after the cavity was completely cleaned. The cavities left and right were approximately the same size, depth about 3 cms., compared with normal depth of about 2.5 cms., from the lower portion of the concha to the innermost surface. (In the normal ear of course the ear drum.) Horizontal and vertical measurements approximately 2 cms., compared with normal about 6 mms., diameter at the drum. The difference of about 1.4 cm. diameter each direction being made by necrosis of the surrounding temporal bone. The patient is comfortable and able to go about his work, and hears an ordinary conversation very well.

Hearing tests 10 months after removal of material are as follows: right ear—loud watch 30 inches, conversation 30 feet. Whispered voice 10 feet. Rinne bc 25 secs., ac. 30 secs. High tuning fork (c^4-2048) heard. Low, heard. Tuning fork 60 seconds. Normal ear—30 seconds additional. C 128 fork, two minutes. Left ear—watch 26 inches, conversation 30 feet. Whispered voice 8 feet. Rinne bc. 25, ac. 30. High fork heard, low fork heard. Tuning fork heard 60 seconds. Normal ear—25 seconds additional. C 128 heard 90 seconds.

The writer could not find recorded in the literature a case of bilateral external cholesteatoma previously reported.

Discussion

Dr. G. A. Smith, Montgomery: The name cholesteatoma was introduced into the literature by Muellar in 1838 and was used to signify a tumor of epithelial cells impregnated with cholesterin crystals.

Our essayist, Dr. Hudgins, mentioned the fact that cholesteatoma may be found in various parts of the body. Cholesterin crystals are also found deposited in various tissues and organs of the body such as the anterior chamber of the eye and the subretinal fluid of detached retina. It seems that the significance of these deposits is difficult to explain.

Cholesteatomata are described as being primary and secondary. The secondary type is the one we generally see in practice, and the aural cholesteatoma is the one in which the otologist is particularly interested.

What is the cause of cholesteatoma? Many theories have been advanced in attempts to answer this question. From the histological structure and appearance of the epithelial cells in a cholesteatoma one would naturally think of tuberculosis. Andrews in his review of the literature says: "Ulrich mentions the existence of tuberculosis as being especially noticeable in these cases." He observed that 41.2% of cases of cholesteatoma were associated with tuberculosis.

The question of congenital origin of cholesteatoma is referred to in the literature, but Nagar

showed that in approximately 100,000 patients observed in Basle and Zurich congenital cholesteatoma was never found.

Dr. Joseph Fischer of Vienna read a paper, before the section on Otology of the Academy of Medicine in New York in 1930, in which he said that the pathogenesis of cholesteatoma is not sufficiently explained by our knowledge of its histopathology. He drew quite an analogy between cholesteatoma and skin cancer.

Regardless of the etiology, from the standpoint of histopathology, aural cholesteatoma appears to be the result of nature's effort to heal and protect against irritation and infection. This is one of the places where nature again goes to the point of overdoing and not underdoing things. When one sees the wide destruction from heaping up of epithelial cells until there is pressure necrosis and bony destruction the thought of malignancy can not easily be brushed aside.

Aural cholesteatoma usually follows long continued, low grade infections of the middle ear. Very acute infections and those with a copious discharge seem to hinder such tumor formations. Cholesteatoma usually is found in those cases with marginal perforations. The most favorable site being the posterior superior quadrant. I believe that can be understood because epidermitization can more readily take place by following through from the wall of the external canal. Any perforation of the membrana flacida seems to be more favorable to cholesteatomatous formation than those of the membrana tensa. Bezold thinks that retraction of the pars flacida over a long period of time due to obstruction of the eustachian tube causes breaks or tears in the pars flacida with resulting cholesteatoma. He says such cases are usually bilateral.

Hellmann observed that the epidermis of the pars flacida, under the influence of long continued irritation due to eustachian catarrh had a tendency to deep ingrowth. This observation seems to bear out Bezold's idea.

External cholesteatoma is the type of case reported by Dr. Hudgins. This is a cholesteatoma of the meatus and not of the aditus or antrum. I believe from my own observations that cholesteatoma of the meatus is the result of a desquamative external otitis where successive layers of epidermis are exfoliated in sheets which accumulate in the deep meatus and by pressure atrophy of the bony wall of the canal leads to an extraordinary dilatation of its lumen. This wide dilatation of the canal is due to a destruction of the basement membrane of the epithelium by pressure irritation with an attempt at repair by regeneration of epithelial cells out of their natural habitat. The bony wall of the canal gives away by death and destruction of its tissue cells to this peculiar tumor formation. Impacted cerumen or a foreign body of long standing may be the exciting cause. These patients may go for years unaware of canal obstruction until after syringing the ear or after swimming when the mass becomes moist and the epithelial cells and other debris undergo swelling which gives the patient a sensation of fullness or pain in the ear which brings him to the doctor.

I recall two cases of this type. In one of the cases the mass was removed with difficulty after many days effort. The mass in the other case was removed under a general anesthetic. The material from each case proved to be cholesteatomatous material. No perforation could be found in the ear drum in either case. Each of these had unilateral involvement.

I want Dr. Hudgins, in closing the discussion of his paper, to describe the appearance of the tympanic membranes in his case.

Dr. V. T. Churchman, Charleston: I would like to discuss a case I had some years ago that might be interesting in this connection, from the fact that the cholesteatoma had involved the entire mastoid, and, much to my surprise, in the mastoid antrum, I found a little white bead. It was a boy about 19 years of age. His mother gave a history of his having had a discharge from the ear, and said he had scarlet fever about four years of age. When he came to me I didn't make a diagnosis except of a suppurative chronic mastoid ear. I started to do a mastoid operation, and found the cholesteatoma in the mastoid, and in the center of the mass was this little white bead, and evidently that child must have put it in its ear when quite small. I just happened to think of that and thought it might be of interest to you.

Dr. Harry V. Thomas, Fairmont: I think we all agree with what has been said and that cholesteatoma is a symptom of upper respiratory infection. I believe that a small quantity which occurs in the subretinal exudate is a symptom of upper respiratory infection. And it is usually a severe suppurating infection. There is no mistake about it being a suppurating ear, when we find cholesteat-

oma. The vast majority will find it is a streptococcus infection. The membrane is soft or boggy, and we always have a softening of the bone. I think if you will investigate these cases where you have a cholesteatoma, you will find that you have softening of the bone, either in the sinuses or the mastoid. And you will always have an odor. It is probably some other infection that goes along with it that we haven't paid much attention to. We always find that it is very hard to eliminate this cholesteatoma by operation. We have found from what has been said that cholesteatoma occurs in the soft tissues; we don't find it in the bone, although bony changes result. It is practically impossible, when you are operating on chronic mastoid or sinus infection, to eliminate *all* diseased soft tissue at one operation. Consequently, a secondary examination will show that you still have cholesteatomal material, either in the nose or in the ear.

Dr. E. C. Hartman, Parkersburg: The doctor mentioned about cholesteatoma occurring in the anterior chamber. I would like to cite a case which followed a perforating wound of the cornea by a wire in a boy aged 14. At the time of the injury two lashes were pushed into the anterior chamber and became encysted in a cholesteatomatous mass about 3 to 4 mm. in diameter, occluding the pupil and adhering to the iris.

There is no doubt that the chronic irritation caused by the lashes, plus the epithelial incarceration during the healing process, caused the cholesteatoma.

Another thing that I have noticed about external cholesteatoma that the doctor mentioned—where there is no involvement of the middle ear it is very frequently associated with a deep chronic cough similar to bronchiectasis—you see it so often in cases where they have epithelial plugs in both ears —if you notice those cases that come in you will see that many of them are just 10 to 14 years of age. They have these epithelial masses just solid, one layer right after the other. Sometimes it takes many different attempts to get it out and frequently an anesthetic is necessary.

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INDUSTRIAL NURSING

Since the modern art of industrial relations has been defined as "the act of courteous, coöperative accommodation of interests between employers and employees with a view to the successful operation of the business in which they are concerned," public health nursing in industry must meet the test of good business methods and therefore be a coöperative process between workers and management, Violet H. Hodgson, assistant director of the National Organization for Public Health Nursing, says in an article, "Public Health Nursing in Industry," in the February *Hygeia.*

A basic and major activity of any industrial nursing service is the care of the sick and injured so that continuity of production may be maintained by keeping workers on the job. Treatment of minor accidents and illnesses, and the prevention of infections and of prolonged absences are a part of the service, in conjunction, of course, with the diagnosis and prescription of the physician when necessary.

The needs of the individual worker enlarge into a general field when the nurse attempts education along preventive lines for communicable diseases, dental care, personal hygiene or periodic physical examinations.

ROCKY MOUNTAIN SPOTTED FEVER, EASTERN TYPE*

(Three Cases Occurring in Same Family on the Western Decline of the Alleghenies.)

By D. G. Preston, M. D.
Lewisburg, W. Va.

During the past few years quite a number of articles on Rocky Mountain spotted fever have appeared in the leading medical publications, and many cases of the eastern type of this disease have been reported in the states east of the Allegheny Mountains from New York to Florida, but insofar as I have been able to ascertain, no report has been made of an outbreak in West Virginia, nor with the exception of six cases in Tennessee and possibly some of the more southern states has there been any reported between the crest of the Alleghenies and the Mississippi river.

It is known to have existed in the Rocky Mountain region since the white man first visited that section. In fact early settlers found a tradition among the Indians that no one could visit certain sections at a given season of the year, "without making the great spirit angry." One man writing on the subject thinks that insomuch as those feared regions were the ones in which spotted fever prevailed, and that the season avoided was that in which ticks were prevalent, it was Rocky Mountain spotted fever which held the Indians at bay.

It is not my purpose to enter into a lengthy discussion of this disease. It is my desire rather to call your attention to an outbreak in West Virginia, that you may study the more complete articles published, and not pass them up as descriptions of a disease known only in the far west.

It would appear that we in this locality are confronted with the problem as to whether this is something new in our section, or have such cases existed in the past without being recognized as such, or if recognized have not been reported. Since observing these cases I hold to the theory that this is not new, and am now convinced that at least one and probably more patients have come under my observation suffering from a disease of this group. A few years ago a child who presented much the same picture as my recent cases visited my office. The pains about the joints, especially the legs associated with a purpuric eruption led me to make the diagnosis of purpura rheumatica as described by Shamberg in his text-book. Unfortunately this child lived in the country district about eighteen miles from town, and I did not have the opportunity to study the case carefully. I have seen other cases with less marked symptoms, which may have been of like nature, but in a milder type.

My opinion that we probably have had other cases in West Virginia was strengthened after talking to Dr. J. C. Flippin, a member of the medical faculty of University of Virginia. He informed me that three or more cases from outlying districts are admitted into the University Hospital each year, and that some of these cases had been positively identified as Rocky Mountain spotted fever, eastern type. After seeing, at my request, two of my cases he gave as his opinion from symptoms and character of eruption, that the diagnosis was correct. In an effort to confirm the diagnosis by laboratory tests, blood was sent to Dr. W. E. Bray, working in the University of Virginia laboratories. Dr. Bray reported positive agglutination tests for B. Proteus X^{19} and Proteus X^{2} in dilutions up to 1:160. It seems that this would identify the disease as to belonging to the typhus Rocky Mountain spotted fever group. It appears that the only way laboratory workers can differentiate between the

*Read before the Greenbrier Valley Medical Society.

two diseases is by running immunization tests through guinea pigs, which is a rather prolonged process. Differential points taken from articles referred to in footnotes would classify by recent cases of Rocky Mountain spotted fever instead of endemic typhus.

Dr. Richards in his article reporting Rocky Mountain spotted fever describes quite accurately the most typical of my cases.

"The rash is the most constant and characteristic single sign in the course of the disease. A few patients may, however, die before the appearance of the eruption. The rash is first seen on the wrists, forearms, and ankles, usually appearing on the third or fourth day and gradually spreading to the rest of the body. It begins as a rose colored, macular eruption which at first disappears under pressure. Later it becomes blotchy and petechial in character. If the rash remains discrete and pinkish it is a favorable prognostic sign. Large spots are more favorable than small ones. The more severe types progress to a darker color, the lesions coalesce and may develop into hemorrhagic and necrotic spots. The life cycle of any given group of spots is about fourteen days, with a gradual change of the lesions to brownish pigmented areas before they entirely disappear. In the more severe types the eruption occurs in the throat and may result in some sloughing. In some cases the rash appears in one, two, or even three crops, each crop running its separate course."

Insomuch as Rocky Mountain spotted fever is most likely to be confused with endemic typhus I am tabulating below the most outstanding points of difference:

DIFFERENTIAL DIAGNOSIS

Rocky Mountain Spotted Fever—An acute eruptive tick borne disease, which has known to have existed in the Rocky Mountain region since 1885, recognized within the last few years in rural areas of eastern states.

Season—Usually early to middle summer months, depending somewhat upon elevation and location.

Age—Children predominate.

Severity—More severe, mortality twenty to twenty-five percent.

Symptoms—Prodromal stage, one or two days of grippe-like symptoms, but in some cases rather abrupt prostration, and general aching pains pronounced rather early in head and back of neck. Early nausea, and deafness usual.

Duration and Course of Fever—Temperature 102° to 105° for about two weeks, falling by slow lysis, reaching normal from eighteen to twenty-four days, depending on severity of case.

Eruption—Appears first on extremities, gradually extending to body, slight on face, lasting throughout period of temperature. Palms and soles usually involved.

Transmission—Ticks, usually ordinary wood ticks, or dog ticks, which have become infected by biting infected small animals, such as squirrels, chipmunks, woodchucks and the like.

Guinea pigs immunized against spotted fever will not become infected with it, but will typhus.

Endemic Typhus Fever—An acute flea borne eruptive disease, found more in urban districts of eastern states since 1909.

Season—Later summer and fall months.

Age—Adults predominate.

Severity—Mild, mortality around one percent.

Symptoms—Two to four days grippe-like symptoms, prostration more gradual and less marked, nausea and vomiting less common. Deafness occasionally.

Duration and Course of Fever—Temperature rising more slowly, running a course of 102° to 104°, falling by crisis or rapid lysis, about the fourteenth day.

Eruption—Appears first, as a rule, about the fifth day on lower part of chest, anterior and laterally, and extending to arms. The palms and soles are involved very rarely.

Transmission—Fleas or mites which have become infected by biting rats which act as host.

Guinea pigs immunized against typhus will not become infected with it but will with spotted fever.

Typhoid was ruled out by negative widal and the character of the eruption.

Measles by absence of Koplik spots and catarrhal symptoms.

Meningitis and influenza by lack of symptoms which would identify them.

In view of the above it seems that I am justified in reporting the following three cases as Rocky Mountain spotted fever.

On the afternoon of August 4th, I was called two miles south of Lewisburg to see a child, age two, and obtained the history that it had been vomiting for the past twenty-four hours. The mother had noticed that the child was feeling badly about two days prior to onset of vomiting. The child seemed quite sick, and dehydrated, had not been able to retain food or water. The temperature was 104°, throat negative, no coryzal symptoms, and little conjunctival redness. Upon examination a pinkish macular rash was observed, little on the face, but rather extensive on legs, arms and body. The rash somewhat resembled that of measles but the individual macules appeared more symmetrical. The mother stated she had noticed the rash the previous day. Neither bronchial symptoms nor diarrhea were present, but the child was much prostrated. On the following day the vomiting had ceased and some improvement was noted, but the rash had taken on a more purpuric appearance, especially on the extremities and body, much like so-called black measles, as one sometimes sees occurring on patients who have faulty circulation. About 6:00 p. m. on Aug. 6th collapse appeared and the baby died at 1:00 a. m. Aug. 7th.

On my first visit to see the baby I noticed another child, male, age eight, in bed and on inquiry was told that both mother and boy had become sick on evening of July 27th, about four days before the child came down, having symptoms of chilliness, headache, and general muscular pains.

Beginning July 31st, the mother noted an eruption on both herself and the boy, appearing first on the extremities and gradually extending over the body. The mother was up but appeared very weak, and I noticed a pink or rose colored macular eruption on her face. The rash on her limbs and body however, had taken on the darker discoloration rather purplish in appearance, some showing on palms and soles. Her main symptom however, was that of severe headache and pains in the neck. In the mother the eruption was discrete and lasted for about two weeks. Her temperature ranged from 102° to 103° from the time she was first observed, then dropped by lysis, disappearing on the twentieth day after onset. In both the mother and boy some new macules appeared with an increase of symptoms on the twelfth day of the disease. Deafness was noted in both mother and boy; slight for the mother but almost complete in the boy. This, however, improved in about two weeks. From the time I first saw the boy he was very much prostrated, very nervous, and suffered delirium, which lasted until August 11th, when it began to clear up. There was on the boy a much more general eruption than on the mother, more petechical in type and on the body and extremities so thick as to be almost confluent. The palms and soles were involved. During the third week a large hemorrhagic spot appeared on external surface of the right ankle. From the time he was first seen by me he suffered severe pains in the joints, general hyperesthesia, and would cry out upon being touched or moved. The tongue was dry, badly coated, simulating that seen in typhoid. There was marked sordes with two or three superficial ulcers on the gums and soft palate. The temperature ranged from 101° to 105°, beginning to decline about the fifteenth day and continued to do so disappearing on the twenty-seventh day of the disease.

It is interesting to note that the mother gave a history of making frequent excursions to a woodland nearby to gather berries. This had continued for about two weeks prior to the onset. The older boy was accustomed to accompany his mother, the younger did, but rarely. On at least one occasion the mother, after returning home found many ticks on her clothing, some on her neck, and after getting out of bed one morning found a tick on her pillow. It would seem probable that the mother and boy had gotten the ticks on them while in the woodland about the same time, and since the younger child came down later, he was bitten by ticks in the bed.

This seems to have been a sporadic outbreak, and one can only conjecture as to the origin of the infected ticks. Some dog coming from another area may have harbored them,

or insomuch as this outbreak was near ground where an annual fair is held, ticks may have been brought in on stock, but what seems more probable to me is that squirrels have become infected in some distant area and migrated to Greenbrier county.

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THE TREATMENT OF HEMORRHOIDS AND PRURITIS ANI*

By BANKHEAD BANKS, M. D., F. A. C. S.,
Charleston, West Va.

FEW physicians with sufficient general and surgical training have in the past gone out to engage in the practice of proctology. The field has been largely in the hands of the physician whose ethical standing was perhaps questionable or even quackish, and it has in addition been exploited widely by the advertising "doctor" and the drug houses having no scruples against advertising to the public various and sundry remedies sure to cure 'piles' and other rectal complaints. Because the physician or surgeon who is ethical, with sufficient and proper surgical training, has failed to take up the newer methods of treatment of these diseases, the men of less ethics, with little or no surgical training and perhaps even using 'secret' remedies, have prospered, sometimes at the expense of the public, and in some localities large institutions using secret formulas have grown up. Suppositories and patent ointments are dangerous weapons, and their use has concealed more disorders than they have cured.

It is unfair for any physician to prescribe empirically the suppository for a patient with rectal complaint without subjecting that patient to a thorough proctoscopic and sigmoidoscopic examination. Many malignant lesions may pass from the operable or even curable stage to one of inoperability during the trial of suppositories and salves.

Any physician who assumes the responsibility of successfully treating hemorrhoids and other simple rectal conditions, must first assure himself by very careful examination that some other condition, particularly a malignant lesion, is not the cause of the patient's symptoms. There can be nothing more important to any patient than a very careful, painstaking proctologic examination for the early diagnosis of a malignant lesion or the ruling out of such lesion. It is rather startling when we realize that of the 1,937 patients with carcinoma of the rectum and sigmoid who were seen at the Mayo Clinic, over a period of twelve years, approximately one of every five had been treated for hemorrhoids or symptomatically for intestinal irregularity, but these are the figures as given by Buie[1]. Many of these cases probably had passed from the operable to the inoperable stage because of the lack of a careful proctologic examination before the institution of treatment for hemorrhoids or intestinal irregularity. It is a well known fact that carcinoma of the rectum remains a local disease during the first year of its growth.

The public has in the past shown antipathy to rectal examination but as the public has learned that such examinations may be carried out without discomfort and pain, it is not so hesitant to mention its rectal troubles to its physicians.

The equipment necessary for making proctoscopic examinations may be very simple:

*From the Proctological Clinic of the New Charleston General Hospital. Read before the W. Va. State Medical Association, Charleston, May 23, 1933.

(1) A Hanes or Buie proctoscopic table which may be used for other purposes.

(2) An anoscope—Kelly or Hirschman.

(3) A Buie *lighted* sigmoidoscope.

(4) Water suction with long tip and suction control.

(5) Finger cots and Nupercaine ointment and lubricant.

(6) A head light is very useful.

An accurate history is essential but it is not advisable to rely upon the patient's symptoms alone in making a diagnosis or in prescribing a remedy. Frequently the patient comes in complaining of 'piles'. A differential diagnosis is possible only after a careful history, physical examination, thorough proctoscopic examination, and complete laboratory work, including biopsy in many cases. The keeping of good records is very important. In a thorough examination of a patient with a rectal complaint the various procedures in the rectal examination should come in the following order:

(1) Examination of stool. (2) Proctoscopic examination, which may be done on the same day. (3) X-ray of the colon which should not be done until the following day.

Anesthesia for proctoscopic examination and for operations in and about the rectum may be satisfactorily obtained by the use of (1) Nupercaine ointment, (2) Local infiltration with novocaine, (3) Sacral and parasacral with novocaine, or nupercaine.

Nupercaine ointment rubbed into the rectal mucosa by the examining finger usually gives sufficient freedom from pain to allow examination with the anoscope or sigmoidoscope. In the more painful rectal conditions local infiltration with novocaine may be necessary. In the very painful conditions, and in the case of the extremely nervous patient, novocaine or nupercaine sacral block or transsacral block may be necessary for the conclusion of a careful proctologic examination. For operations in and about the rectum sacral block is the anesthesia of choice, and the proctologist should have a thorough knowledge of the method of producing anesthesia by this means. The advantages of this method lie in the fact that it is (1) easy to administer; (2) free from shock and other complications; (3) certain to produce a degree of relaxation not obtainable with any other form of anesthesia. Under sacral block anesthesia the rectal sphincter is dilated more easily and with less damage to the muscle fibers than under any other method of anesthesia. General anesthesia is seldom used because its use is of necessity excessive in order to produce the desired relaxation. In very nervous patients who object to remaining awake during a rectal operation, sacral block may be combined with a small amount of nitrous oxide anesthesia by inhalation.

The Treatment of Hemorrhoids: (a) Internal hemorrhoids may be successfully treated either by injection or by operation. If treated by injection very careful selection of cases is imperative. Internal hemorrhoids of moderate size, not edematous, thrombosed or infected, and with only moderate degree of protrusion are best treated by injection. We prefer the use of quinine-urea-hydrochloride in ten per cent solution as put up for us in five cc. ampoules by one of the drug manufacturers, rather than the weaker solutions advised by other proctologists, because of the more uniformly good results following the use of the stronger solution. Treatment by injection has the following advantages: (1) it is ambulatory; (2) it gives excellent results in carefully selected cases; (3) it is free from pain and complications.

The injection of sclerosing substances in oil is dangerous in that stricture and tumor formation may follow, as pointed out by Rosser[2] who states that he has seen twenty-four patients in the past five years whose rectal complaint dated from the injection of solutions of phenol in oil. Of the twenty-four patients, twelve gave a variety of symptoms including severe rectal pain, or developed chronic anal ulceration, gangrene, abscess, fistula or prolapse of injection nodules. I have seen five persons during the past three years with serious complications following the injection of phenolized oil solutions. Three of these patients had large rec-

tal sloughs, one had tumor formation, and one had abscess formation resulting in recto-vaginal fistula after she had developed symptoms of septicopyemia from which she soon died.

Internal hemorrhoids of large size, and when edematous, thrombosed, infected or ulcerated should be removed surgically for which I prefer the use of clamp, electro-surgical unit, and electro-cautery to control bleeding.

(b) External hemorrhoids should be removed by surgical dissection and excision under local novocaine or sacral block anesthesia.

(c) Combined internal and external hemorrhoids may be treated by surgical dissection, ligation and excision or by electro-cautery excision. In carefully selected cases the internal hemorrhoidal masses may be injected, following which there is frequently found a marked decrease in the size of the companion external hemorrhoids; if these external hemorrhoids do not disappear after injection of the internal hemorrhoids they may be easily removed by dissection under local novocaine anesthesia.

Hemorrhoids of whatever type when accompanied by other surgical lesions of the rectum should be treated surgically along with the accompanying surgical lesion.

The after care of hemorrhoid cases treated by any of the chosen methods is very important. In my opinion it is not necessary to prevent movement of the bowels; it is more important to produce easy passage of bowel contents by administering large doses of mineral oil daily. Pain may be controlled by the local application of nupercaine ointment or Procturol jelly—Reed. The latter drug is useful both for its astringent action and its local anesthetic action. Opium suppositories may be necessary to control pain. Hot Sitz baths are useful for relief of pain as well as for the reduction of swelling and edema. Following the injection of internal hemorrhoids the patient must always be cautioned to replace immediately any hemorrhoidal mass that may be extruded; if this is not done edema, swelling and even sloughing may occur.

The Treatment of Pruritis Ani: Pruritis ani, whether symptom or disease, is a very distressing affair at the best. I shall discuss only the treatment of this condition in the patient in whose case a very careful physical and clinical examination has failed to find any underlying systemic etiological factor. Such cases have been found in my series usually accompanied by either internal hemorrhoids, fissure or fistula. Most of these sufferers have been found to have internal hemorrhoids. It is my opinion that the condition of the skin about the anal orifice in patients with pruritis ani is analogous to the condition of the skin of the lower extremities in patients who have varicose veins of the legs frequently complicated by an eczematous eruption which itches intensely and may go on to ulceration. Hemorrhoids are varicose veins, filled with stagnant blood, which results in poorly nourished and poorly oxygenated tissues about the lower rectal segment and peri-anal skin. The ano-rectal junction is one of the two areas in the whole body where the venous circulation of the gastro-intestinal tract anastomoses with the venous circulation of the skin and subcutaneous tissues. In treating these cases any underlying surgical lesion of the rectum should be eradicated. Internal hemorrhoids are relieved by injection with ten per cent solution of quinine-urea-hydrochloride, thus eliminating the stagnation of blood in the hemorrhoidal veins. After the obliteration of the hemorrhoids the subcutaneous tissue about the anal orifice beneath the irritated macerated skin is injected thoroughly with a solution containing equal parts of ten per cent quinine-urea-hydrochloride and 1:1,000 nupercaine solution. Quinine-urea-hydrochloride solution injected subcutaneously is irritating and produces a mild inflammatory reaction with resulting increased blood supply; this increase in blood supply is enhanced by very vigorous massage following injection and repeated twice daily, also by hot Sitz baths ordered to be taken twice daily. Nuper-

caine, a local anesthetic of prolonged action stops the itching while the increase in blood supply is causing improvement in the nourishment of the skin. As soon as there is any recurrence of the itching the injection is repeated, the massage and hot Sitz baths being kept up during the course of treatment. During the past year I have treated sixteen patients by the above method, twelve being definitely cured, two improved, and two absolutely unimproved. The average number of injections per patient was six.

Granville Hanes[3], of Louisville, reports excellent results in treating pruritis ani by injecting hydrochloric acid and novocaine.

Buie[1] of the Mayo Clinic, reports excellent results following the injection of alcohol, but in my opinion this form of treatment should be used only in cases resisting other methods of treatment since hospitalization of the patient is necessary and because sloughing results in about 50 per cent of cases so treated.

Conclusions: (1) Training in general surgery is necessary before taking up proctology as a specialty.

(2) A very thorough sigmoidoscopic examination is essential in every patient coming in with a rectal complaint.

(3) Carcinoma of the rectum is a local disease during the first year of its existence. In eighty per cent of all cases the growth is situated beyond the reach of the examining finger and the field of the anoscope, the most frequent location being the sigmo-rectal junction. An early diagnosis may be made by the intelligent use of the sigmoidoscope.

(4) Care in the selection of cases of hemorrhoids for injection is very important. Approximately sixty per cent of all cases of internal hemorrhoids may be cured by the injection of quinine-urea-hydrochloride in ten per cent solution. I am opposed to the use of sclerosing substances in oil. Emmett Terrell[4], of Richmond, first used quinine-urea-hydrochloride in the treatment of hemorrhoids.

(5) The use of quinine-urea-hydrochloride with nupercaine solution has proven valuable in treating pruritis ani. Similarly good results are reported by Hanes[3] using hydrochloric acid and novocaine; and by Buie[1] using alcohol.

Discussion

Dr. T. L. Harris, Parkersburg: It is a great pleasure to be privileged to open the discussion on a question of such timely importance but one which has been so terribly neglected by the great majority of physicians. To discuss this subject which has been so thoroughly and beautifully presented by Dr. Banks, I feel very much like Sir Robt. McCune's remark when he was asked to discuss Lister's paper on aseptic surgery when he said, "When the mocking bird sings in the forest, all the other birds keep silent for fear the sound of their voices might disturb his echo."

I first wish to emphasize Dr. Banks' remarks about the importance of rectal examination and I fearlessly make the statement that if physicians would follow this procedure with all patients who present themselves at the office with gastrointestinal complaints and start at the terminus with a rectal examination rather than with an examination of the tongue, patient would receive greater benefits. To illustrate my point I would like to relate an instance that occurred to me in my earlier days of private practice. I was called to see a lady who obviously had every typical clinical symptom of duodenal ulcer. I made a gastric analysis which showed a marked hyperacidity. I had gastrointestinal x-ray studies made; the röentgenologist reported a duodenal ulcer with early approaching perforation. The patient was told definitely and conclusively that she had a duodenal ulcer and advised of the danger of perforation. Operation was advised which she refused and accepted medical treatment with rest in bed and careful diet over a period of three weeks. At the end of this time she was definitely improved but shortly after assuming her normal household duties, her symptoms returned.

In urging operation I suggested to her that she consult someone else and referred her to my good friend, Dr. Bettman of Cincinnati. On his report to me he called my attention to a large rectal ulcer and suggested local treatment. Within a period of 30 days' treatment, the patient's symptoms completely disappeared and that has been 15 years ago and she has never had a perforation of the ulcer until this time, in other words, this patient never had a duodenal ulcer, her gastric symptoms were reflex entirely from the rectum, consequently her

opinion of me as a stomach doctor is nil; but that case has been worth many hundreds of dollars to me. Gentlemen, there is not a stomach case that passes through my hands that does not get a rectal examination before a definite diagnosis has been reached and I assure you that frequently the examining finger or the proctoscope will save your patient much suffering and many dollars in gastro-intestinal studies and this in turn will save many lives that would otherwise be sacrificed.

A short time ago I had a lady referred to me who had been definitely diagnosed carcinoma of the stomach, diagnosis was based upon symptomatology and x-ray studies. The x-ray study did not reach far enough, this patient had a definite carcinoma of the upper sigmoid which was resected and the patient, at least temporarily, restored to normal health. I review these cases with the sole idea of carrying home to you the importance of rectal studies as pertains to your daily office practice.

I want to spend just a minute on the question of the treatment of hemorrhoids, first to sound the keynote of danger in the injection treatment unless one is thoroughly informed as to the drug he is using and the technique of its usage. I have had a liver abscess a direct result of the injection of a hemorrhoid with a preparation of carbolic acid and salicylic acid, I should have been afraid to use the combination under any circumstances. This patient was made dreadfully ill immediately following its injection, developed a terrific slough with a perirectal abscess and a secondary liver abscess which cost him many months of disablement. I do not cite this to condemn the injection treatment but to urge the proper knowledge of its performance before attempting it; secondly, I consider the after-treatment of any method of hemorrhoid treatment, and especially the surgical excision, as important as the operative procedure itself; in all my hemorrhoid cases I require them to come to the office at intervals over a period of 60 days for rectal examination at which time the rectum is kept dilated to prevent secondary rectal strictures.

Dr. W. W. Strange, Huntington: The subject of proctology is largely neglected. As Dr. Banks pointed out, that is why quacks and irregular practitioners thrive in this particular field. Dr. Banks has pointed out the desirability of general surgical training for the man doing proctology. I think you will all agree on that. However, the field is not an extensive one. It can be practiced satisfactorily by the average general surgeon, if he gives some special attention to the newer methods. The modern trend is away from the tendency to specialization, which existed a few years ago. Possibly, the economic depression has something to do with this. For that reason, I believe there is no sound reason why the general surgeon should not devote more attention to proctology, where there is no opportunity for any one to have the services of a full-time proctologist. The armamentarium for the practice of proctology is not particularly expensive.

Dr. Banks discussed the relative merits of the block anesthesia and sacral anesthesia, and pointed out that they are much more successful than general anesthesia in this type of work, particularly since the relaxation is better than can be obtained with general anesthesia.

To me his treatment and results in the treatment of pruritis ani are interesting. Whether or not we can agree entirely with his interpretation of the action of the quinine urea hydrochloride, we must admit his results with these drugs have been very much more successful than we would have been able to obtain by other methods.

Chairman: Dr. Banks has taken a very lowly subject, and given us a very interesting paper on it. We have had two excellent discussions of this paper, and it is now open for general discussion.

Dr. W. P. Black, Charleston: I have been practicing proctology since 1920. When I first began there wasn't anyone in this community who was doing proctology, and I had quite a number of patients going to Columbus and various parts of the country, and especially to Ogden and Grand Rapids, Mich. They thought this a very wonderful treatment, and set out to find out what it was. Finally I found a man that knew all about it, and would be glad to give me a course for $500. I arrived in Chicago and spent some time with him. He was doing a lot of things that I thought unnecessary, and things that didn't appear to pertain to medicine. Finally he showed us how the Burlesons treated their hemorrhoids. Finally I went up to the American Medical Association offices, and found that he was not a member, and had never graduated from any medical school. So I asked one of the gentlemen there what to do with it. He said, "Go on down, and see what he's got." The

treatment was an electric needle. You can take an ordinary harness needle, and wrap twine around it up to within a quarter of an inch of the point, and shellac that, and place it in a little ordinary thing that a dentist uses, when grinding teeth, and the electric current passes through that. There is one pad on the buttocks, or on any part of the body you wish. And that must be moist. The needle is then thrust into the hemorrhoid, after it has been injected with novocaine, and then after fifteen minutes, the hemorrhoid will turn completely black, and will drop off with little pain. It works fairly well, and the patient is generally satisfied.

After I left there I went to Columbus to see McClelland. He wasn't teaching anyone. His practice was private. He just didn't invite me in. From there I went to Chicago and found another man from Ft. Wayne, Indiana, who was giving a course, and I took that.

He had nothing but a 5 per cent solution of simple carbolic acid, injecting it into the hemorrhoid. Then I went to Marion, Ohio, to another one and found he was injecting hydrochloric acid into the hemorrhoid, in the same solution Haynes used in Louisville. Then I came back, and decided to try out all of these methods, but none of these treatments prevent their recurrence. I found this out not long ago when I had a patient treated nine years before. His hemorrhoids were just as big as the first time I treated them, and he was treated this last time by the injection method.

Dr. Banks spoke to you about the various solutions, and the strength of them. I have injected plain water, and have injected 2% mercurochrome, and have injected any number of solutions, and all of them give some results. The 10% solution did a little more damage than a 5% solution. However, I used both. As to sacral anesthesia, a proctologist should be able to use any anesthesia his patient wants. In using the needle, start on the left side and use it about a half inch from the canal; insert it and start right toward the posterior, and toward the anus, and then beyond the white line, until you come to the end. Go on to the other side and do the same thing. The advantage over the injection is the local anesthesia. You get a two-fold action. There are many things buried that you never get otherwise.

Every time that you put a stitch to the rectum or the anus, you are liable to have an abscess. I have done many cases without any such methods. Whenever you see bleeders, inject quinine urea. It works very satisfactorily.

At the present time I am working on a solution of arsenic that looks to me like it's going to revolutionize the whole thing. I don't want to make a report on it, but you know the effect of arsenic on the nervous tissue.

Dr. Banks, (closing the discussion): I enjoyed Dr. Harris' and Dr. Strange's discussion very much, and Br. Black's remarks. Dr. Harris' very proper emphasis of rectal examination was gratifying to me. That brings to my mind two cases I have seen lately. One was a colored man who was in the hospital with a diagnosis of postoperative intestinal obstruction. He was operated on the year before. His abdomen ballooned up; he was vomiting everything he took, and in the routine examination the man was referred to me by Dr. Preston of Charleston. I inserted my finger into the rectum and wound up by removing a quart can full of watermelon seed. Later I gave him an enema, and he passed another quart of watermelon seed. That examination saved him an abdominal operation. After we had removed the seed, he gave us the history that one week before he dropped into a watermelon patch and had eaten five watermelons.

Another case was that of a little boy whose mother said that for the past week the child had been soiling his clothes at school. They whipped and scolded the child, and tried to train him, and didn't like to think that their boy had lacked the proper training along such lines. I told them to bring the child to me—that I'd like to take a look at him. I inserted my finger into the rectum and removed the fecal impaction I found. I cite these two cases to show the value of rectal examination.

As regards injection of oil and phenolized oil solutions, there is one danger that is seldom mentioned, and that is the occurrence of an oil embolus. I know of one such case. A very prominent man had his hemorrhoids so injected. One hour later he fell suddenly to the floor, and was unconscious for a short while, and had a definite convulsion. We don't know of course that the man had an oil embolus, but that is a possibility. Needless to say, he has never had them injected since.

Dr. Strange said that the general surgeon is very capable of doing proctology. That is right. I'm glad Dr. Strange brought out the value of local anesthesia. And I'm glad Dr. Black men-

tioned the value of block anesthesia. I like, too, to give the patient his choice of an anesthetic, but, at the same time, it is absolutely impossible to dilate a rectal sphincter with gas anesthesia. I have been unsuccessful in doing it. When you try to dilate it under gas you do more harm than you do good. If you tear the muscle fibres instead of slow dilatation, the muscle tear will never heal. I think they should not have it unless they demand it; and when they demand it, I give it to them; but first I give them a sacral canal block anesthesia, with novocaine, and then in a few minutes give gas anesthesia, and proceed with the operation.

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THE UMBILICAL CORD CLAMP*

By THOMAS W. NALE, M. D.
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THIS title suggests one of the simpler items encountered in the practice of obstetrics, yet, often we forget about the simpler or minor details and continue to use methods that were used years and years ago. Personally, I prefer to use the cord clamp instead of the cord tie or tape. Some of the leading authorities in obstetrics continue to use the conventional cord tie and it is my impression that most men, practicing in West Virginia today, use it.

I wrote to the man whose textbook on obstetrics is considered supreme in its field. Instead of getting some support for my paper, the reply was as follows: "Many years ago we tried out various kinds of clamps and machinery of various kinds in the tying of the cord and finally went back to the old method of using a simple tape." Nevertheless this did not stop me from writing this short paper.

My experience with the use of the cord clamp is over a period of eight years. It is not extensive in the number of cases but I have used the clamp under all sorts of conditions. I began with seeing it used in the hospital where I interned, and then through two years when I was associated with the University of Pittsburgh, Department of Obstetrics. At the University the clamp was used in both the outside and inside services. The outside service is the handling of obstetrical cases in the homes of the indigent in the Pittsburgh district which would correspond to the type of cases encountered in the mountain communities and list practices in West Virginia. Since this period I have used the clamp in practicing in one of our larger cities and in doing typical coal camp practice. I merely mention these facts to bring out the point that the cord clamp is practical in the home as well as the hospital.

As to the type of clamp to be used, it makes little difference. The important point is to use a clamp that clamps the cord very tightly. There have been numerous clamps on the market. The Ziegler instrument has been very popular and is no doubt the cleverest clamp produced. I have seen Dr. Ziegler use his clamp, and my objection to it is that it is too complicated; as it requires a special instrument for applying and the rubber around it deteriorates after repeated sterilizations. Until recently I have used a simple curved, long bladed hemostat. Recently I have used the "Kane" umbilical cord clamp which is similar to the hemostat except that its blades are between the lock and the handles. This gives one an instrument that is shorter.

The technique that I have used is as follows: As soon as the cord stops pulsating, the hemostat or clamp is applied to it one centimeter from the skin margin and the clamp is left in place. Another clamp is placed on the cord above this clamp and the

*Original Paper.

cord is cut between the clamps so that one centimeter of cord remains above the first clamp. This leaves about three centimeters of cord attached to the infant. A 2½ inch square gauze pad, which has been cut one half in two, is applied under the clamp. Another gauze pad, saturated in alcohol, is placed over the cord stump. An assistant then holds the infant up by the legs and with a three inch roller bandage the clamp is bandaged to the abdomen, occasionally reversing the bandage so that it conforms to the shape of the abdomen. The bandage is tied into place and the mother is instructed not to remove it. This bandage takes the place of the conventional band. On the second day following delivery, the clamp is removed. It is safe to remove the clamp in twenty-four hours but in home deliveries, I believe that it is better to leave it in place for forty-eight hours.

Why is the clamp preferable? If a clamp is used that grips the cord stump very tightly there will always be a dry gangrene of the cord instead of a moist gangrene generally encountered when the cord is tied with a ligature or a tape. At forty-eight hours the cord is found to be hard and brittle and in three to five days falls off. This does away with the moist, discharging stump encountered when the cord is tied. A dry gangrene is not as likely to become infected as a moist gangrene. I do not believe there will be as high an incidence of umbilical hernia when the clamp is used.

No paper is complete without some statistics. Dr. Maurice Hodgedon has supplied me with some figures from the University of Pittsburgh, Department of Obstetrics. In the five year period from April 1928, until April 1933, 2461 cases were delivered in the homes and 12,630 cases were delivered at Magee Hospital, making a total of 15,091 cases. Some form of umbilical clamp was used in all these cases. As far as is known there has been no complications directly due to the clamp. In 1933 there was one case of mild inflammation of the cord. From one to three cases of umbilical hernia a month were noted.

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

Tuberculosis can be like an iceberg," says David A. Stewart, "only one-tenth visible and nine-tenths submerged." A recent study of 2,000 apparently healthy food-handlers in New York City calls attention to the presence of unsuspected cases and to the danger of this silent menace to others. Abstracts of the report of this study follow.

Tuberculosis Among Food-Handlers: In 1915 the Department of Health in New York City introduced a plan requiring food-handlers to obtain a certificate showing that they were free from infectious diseases in a communicable form. Physical examinations were limited at first to food-handlers in hotels, restaurants and other food-handling establishments, and later extended to include those who handled foods in hospitals, foundling asylums and similar institutions.

Survey of 2,000 Food-Handlers: Feeling that the method followed in examining food-handlers was open to question a survey was begun in 1932 of 1,000 apparently healthy food-handlers. Subsequently another group of 1,000 was similarly studied. These surveys had two objectives in view, namely:

1. To determine the incidence, extent and character of pulmonary-tuberculosis lesions in an average group of apparently healthy food-handlers.

2. To determine, if possible, what would be an effective way, in a community like New York City, to screen out those cases of tuberculosis in food-handlers which might prove important sources of infection with tubercle bacilli.

The method adopted after some experimentation was to make:

1. A routine röentgenogram of the chest.

2. An examination of the sputum.

3. A physical examination of the chest of those in whom a pulmonary lesion was demonstrated by the x-ray.

Of the first group of 1,000 examined, 772 were men and 228 woman. The total number diagnosed as tuberculous was 125 (12.5 per cent), and of these 109 had no diagnostic physical signs.

In the second group of 1,000 there were 473 men and 527 women, and a total of 112 cases of

tuberculosis were discovered. The cases discovered in the two groups were classified as follows:

	First group	Second group
Healed childhood tuberculosis	73 cases	83 cases
Latent adult tuberculosis	16 cases	19 cases
Active pulmonary tuberculosis	36 cases	10 cases

While the proportion of women in the second group was larger than that of the first group the average incidence of lesions discovered did not vary much in the two groups. An important difference, however, appears in the active tuberculosis group, namely, 3.6 per cent for the first group and 1.0 per cent for the second. This conforms with the observation that pulmonary lesions are more common in adult males than in adult females.

Conclusions: The authors conclude, that the average incidence of active pulmonary tuberculosis lesions of food-handlers in New York City is approximately 2 per cent and they believe that this represents the average situation in all large urban communities. In New York City, with a food-handling population of more than 325,000, this percentage represents the existence of not less than 6,500 cases of unknown and therefore uncontrolled active pulmonary tuberculosis, to say nothing of thousands of cases of arrested tuberculosis, childhood type tuberculosis and pleurisy. Other conclusions are that when the question of tuberculosis is invloved no physical examination of the chest is worth its name without the x-ray, and that progressive pulmonary tuberculosis may exist without demonstrable diagnostic signs.

A Tuberculosis Survey Among 2,000 Food-Handlers in New York City, Martin, Pessar and Goldberg, Am. Rev. of Tuberc., Feb., 1934.

The impression that practically all adults react to the tuberculin test is largely responsible for neglecting the use of this diagnostic aid. In the adult a positive reaction is of limited value but a negative reaction rules out the presence of tuberculosis and is therefore extremely valuable. M. R. Lichtenstein in the February American Review of Tuberculosis discusses the value of the negative tuberculin test in adults.

Tuberculin Test in Adults: A prevalent conception is that a negative intracutaneous tuberculin test may occur in the presence of active tuberculosis. This idea is erroneous, since it has been shown that all cases of pulmonary tuberculosis react if concentrations up to 1 to 10 are used. The only exceptions are moribund patients, and these, as a rule, present no problems of diagnosis.

Another conception is that practically all normal adults react positively. This, too, is fallacious for while the percentage of negative reactors probably varies widely with the geographic locality it is enough to make the test worth while, and the percentage is probably increasing.

Exclusion of Tuberculosis is Important: The exclusion of tuberculosis becomes important in the diagnosis of the case of suspected early pulmonary tuberculosis with negative sputum, dubious x-ray and inconstant or slight physical findings. When such a patient undergoes months of observation and is told finally that he is an arrested case it places upon him the stigma of tuberculosis and leaves him with a dread of breaking down. All patients coming to the Municipal Tuberculosis Sanitarium of Chicago as suspected cases and not proved to be tuberculous by the preliminary study were given a tuberculin test. The intracutaneous test was used; the quantity injected for each test was 0.05 cc.; readings were made at 48 hours; O. T. was used at first, and later T. P. T. (Seibert). Testing was begun with 1/100,000, 1/10,000 and 1/1000 dilutions. If negative, the 1/100, and, after intervals of 48 hours each, if negative, the 1.10 and 1/1 or full strength solutions were injected.

Of the 162 patients tested 14 (8.6 per cent) were completely insensitive to all tests and were ruled out at once as nontuberculous. Nine (5.6 per cent) reacted only to the stronger dilutions, but it is very probable from observation that they cannot have *active* tuberculosis.

Two main groups of patients present themselves as problems in diagnosis. First is the group with symptoms suggestive of early tuberculosis, but with negative or dubious physical and x-ray findings. Second is the group with physical findings or x-ray shadows and with few or no symptoms. Most of the patients in our tuberculin-insensitive series who came under the first heading were finally diagnosed as showing various sequelæ of acute pulmonary infections, or subacute infections of other organs. Under the second heading most of the cases turned out to be bronchiectasis or cardiac disease. One of the latter group was an asymptomatic unilateral apical bronchiectasis sent in with a diagnosis of tuberculosis because of the apical rales and x-ray shadow. Although many of the patients discussed here were suspected to be nontuberculous on clinical grounds, the clinching argument in *proving* them

nontuberculous was the tuberculin test. Without the test a period of observation, probably of several months' duration, would have been necessary before the clinician could safely state that the patient had no tuberculosis.

Tuberculin Test Should be Routine: The test has value in private practice because it is helpful in those cases in which diagnosis is most difficult. Occasionally it solves quickly and decisively a problem in diagnosis which would never be solved otherwise. The intracutaneous test carried into the stronger concentration should be a part of the diagnostic routine of every physician who considers tuberculosis.

The Value of the Negative Intracutaneous Tuberculin (Mantoux) Test in Adults, M. R. Lichtenstein, Am. Rev. of Tuberc., Feb., 1934.

CONCERNING PRESCRIPTIONS

The furore which has arisen from efforts now underway to tighten up Federal control of the marketing of food, drugs and cosmetics has brought out some interesting, as well as tragic, information concerning various ways being used to swindle the public and harm public health by unscrupulous producers and distributors of such products.

The medical profession is heartily in favor of having drastic regulations instituted in an effort to protect the public from frauds of this kind. It has said so on numerous occasions and has used its influence to bring about reforms in statutory regulation of the food, drug and cosmetic industries.

However, there is little the physician as an individual can do about the matter. Naturally, he can do little to prevent people from squandering their money on worthless patent medicines. Usually when he does blow a verbal blast at medical frauds and worthless concoctons, he is accused of prejudice and unfairness.

There is one thing, however, the physician can do to protect his patients and give them some assurance that they are not going to be gyped or be the victims of harmful products. That is in the matter of care and judgment in the writing of prescriptions.

The editor of the *Indiana State Medical Journal* in a recent issue of that publication stressed the point we have in mind in a concise and direct manner when he declared:

"It takes a physician a long time to acquire the knowledge which permits him the responsibility of writing a prescription. He puts on this piece of paper the authority for a licensed pharmacist to deliver to a patient drugs which are potentially dangerous or worthless if not correctly compounded or directions not conscientiously followed. The physician's reputation is not infrequently carried in this slip of paper. It should be a specific order, and not one to be filled at the choosing of anyone else in any other way except as intended.

"It is to be assumed that the writer of the prescription understands explicitly the nature of the drugs for which he writes. This means that he knows the origin and preparation of the individual constituents of a prescription. All pharmaceutical houses do not prepare drugs in a like manner. Every tincture or fluid extract of a drug is not the same. Not all ergot or digitalis preparations are alike. Not every one-grain tablet of thyroid or one c.c. of pituitrin is equal in all respects to another put up by a different firm. Many firms make only a few preparations to which they give the most painstaking care. It is possible that they may have processes and qualifications superior to a firm making a complete line. Physicians soon become familiar with the nature of certain preparations and rely upon them. Undoubtedly many competing preparations do not give the expected results.

"With very little extra trouble when writing a prescription one can specify the preparation he specifically wishes, and he has every reason to expect that the specified preparation will be dispensed."

Through careless prescription writing, a physician can contribute much harm to his patients and indirectly prove himself an ally to the unscrupulous pharmacist or producer of inferior drugs. To protect his own reputation and safeguard the best interests of his patients, the physician should know what preparations are the most effective; should specify that only these be used in filing prescriptions, and should instruct his patients to have prescriptions filled only at pharmacies of known reputation for honesty and caution.—*Ohio State Medical Journal.*

CRISIS IN MILK INDUSTRY

The milk industry, like other lines of business, is passing through a crisis, and the answers that are given to the economic questions arising must be made with a consideration of the health and safety of the community.

It is not strange, says Dr. W. W. Bauer in an article in *Hygeia,* "Shall We Pasteurize," that serious proposals have been made to declare the milk industry a public utility.

PRESIDENT'S PAGE

In recent years a number of state legislatures have enacted Safety Responsibility laws for automobile drivers. Under a Safety Responsibility law, an automobile owner operates his car under a severe handicap unless he carries liability insurance. If he is involved in an accident that results in the injury of another person, and if he is unable to pay rightful damages resulting therefrom, his license is automatically revoked. He must then provide either insurance or an accredited bond before his license can be reinstated.

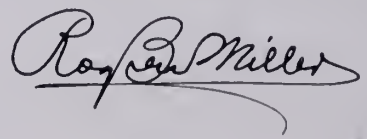
We are glad to see the Hospital Association of West Virginia becoming interested in a similar law for this state. Such a law tends to keep down careless and reckless driving and also to rid the highways of irresponsible drivers. The interest of the West Virginia hospitals in such a measure is apparent. They hope to not only reduce the number of automobile accident victims brought to their doors but also to create some means whereby the financial obligations of these victims will be taken care of.

A conference of officials of the West Virginia Hospital Association was held in Charleston early this year at which time considerable thought was given to a "responsibility" law for this state. As a result of this conference, a proposed statute is now being drafted that will increase by 25 cents the cost of every automobile license plate sold in West Virginia. This assessment will create a fund of approximately $100,000 each year to be used in paying the medical, surgical and hospital costs of all persons injured in automobile accidents who are otherwise unable to pay for such service. The fund would be administered through the state road commission.

A similar statute is already in force in Ohio, where 19 cents is added to the cost of each automobile license. The Ohio law was passed one year ago and has proven unusually satisfactory.

We understand that the Hospital Association of West Virginia has already interested a number of influential persons in their proposed statute, which they plan to introduce at the next regular session of the legislature. As their bill provides for medical and surgical as well as hospital care, it goes without saying that the West Virginia State Medical Association will render every possible assistance to get the bill through.

It is comforting indeed to find another organization besides our own working toward a solution of some of the problems of medical economics.



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CORPORATE PRACTICE OF MEDICINE

From time to time our medical societies and the public health councils have attacked, in various ways, those persons who attempt to practice medicine illegally. This is a commendable and salutary service, for the unscrupulous and often injurious practices engaged in by those who are not qualified to practice medicine tend to bring the entire profession into disrepute. One who can qualify himself for a license to practice medicine is entitled to have his rights as a practitioner protected against invasion by those who cannot qualify.

That the illegal practitioner does considerable damage to the profession and to the legitimate members thereof cannot be denied, but have we not overlooked the principal malefactors? We refer to the general hospitals throughout the state which undertake to engage in the practice of medicine under stereotyped contracts with coal companies and other industrial corporations. These "list" contracts usually provide that the hospital shall furnish "medical, surgical and hospital treatment" to the employees of the coal company at a fixed rate per month.

Hospitals, almost without exception, are corporations. To use a trite legal expression they are "soulless legal entities." As such they cannot be licensed to engage in the practice of any profession.

A decision involving this identical question recently came to our attention from the supreme court of Minnesota which held, in a strongly worded opinion, that a layman could not conduct a health audit service furnishing urinalyses and blood pressure tests through the medium of employing a licensed physician to do the actual work. The malefactor, John Granger, was a layman. He conducted a health audit for a fee. He either advised his patients himself or else passed on to them advice from the pathologist in his employ.

In ruling on the above set of facts the Minnesota Supreme Court held that Granger was practicing the science of healing and that his contract with his pathologist was illegal and in violation of statute and the public policy of the state. Among other things the court pointed out—

> "That the patient shall be the patient of the licensed physician, not of a corporation or layman. The obligation and duties of the physician demand no less. There is no place for a middleman."

Commenting on the above case, Minnesota Medicine stated "This decision if of tremendous importance to the medical profession. It will go a long way towards confining the practice of medicine to those who are licensed."

These are interesting times in which we live. Less than a year ago the Supreme Court of our own state held, in the famous Sloan-Mitchell decision, that a doctor's license to practice was a property right which could not be infringed upon by any person not holding such a license. A few months ago we found the Paisley coal interests running to cover when they were attacked by the Association for the corporate practice of medicine. Now comes Minnesota to place another star in the crown.

In our opinion, "List" hospital practice is on the run. We are almost inclined to believe that it will "fizzle out" before it is

legally annihilated. In any event we need have little fear for the future of medical practice in America if organized medicine continues to pursue this vigorous policy of demanding its rightful inheritance. Without organized medicine it would perhaps be a sorry battle.

THE STATE MEETING

Plans for the Sixty-seventh Annual Meeting of the West Virginia State Medical Association at Huntington are rapidly nearing completion. The committee on Scientific Work, under Dr. R. J. Wilkinson, has the program well in hand with letters of acceptance of all the scientific essayists. As soon as the discussants for the various papers are selected the committee's assignment will be completed and the completed program announced.

A number of new innovations will be introduced at the Huntington meeting, according to present plans. There will be no discussion assignments whatever on the general meeting program. However, all papers except the orations will be thrown open for general discussion. Not more than three minutes will be allowed for each discussion and it is hoped that these will be limited largely to asking questions of the essayist, who will be given ample time to close his paper.

Another feature of the Huntington session will be the partial elimination of afternoon programs. Only one paper each has been scheduled for the Tuesday and Wednesday afternoon sessions. The first will be a symposium on infantile paralysis by Dr. W. J. Aycock and Dr. C. F. McKhann of Harvard Medical school. The second will be an address by Dr. Olin West, Secretary of the American Medical Association, on some phase of medical economics. Informal clinical conferences will be held on both afternoons following the above addresses.

The third feature will be the elimination of the regular convention banquet on Wednesday evening for a dinner dance for the doctors and their wives. An attractive program of entertainment is already being worked up by the Huntington doctors for this affair.

All four of the sectional meetings will be held in the Hotel Pritchard on Monday afternoon, May 14, and the general program will be called to order the next morning. Special meetings will include a gathering of the West Virginia Heart Association on the morning of May 14. The Council will also meet on the same morning and the House of Delegates will hold its first regular meeting on Monday evening.

Out-of-state speakers who have accepted invitations to appear on the Huntington program include, in addition to Dr. West and Drs. Aycock and McKhann, Dr. Paul White of Boston; Dr. W. D. Gill, Roanoke; Dr. E. J. Browder of Brooklyn; Dr. William B. Morrison of Columbus; Dr. Luther C. Peters of Philadelphia and Dr. Russell Haden of Cleveland. Their subjects will be announced in the April JOURNAL.

Members of the Association scheduled to appear on the general program include Dr. George M. Lyon, Huntington; Dr. John W. Moore, Charleston, and Dr. A. L. Osterman, Wheeling. The Oration on Medicine will be delivered by Dr. G. R. Maxwell of Morgantown and the Oration on Surgery by Dr. James R. Bloss, Huntington. Members scheduled for the sectional programs include Dr. William R. Laird, Montgomery, Dr. H. H. Haynes, Clarksburg; Dr. W. K. Kalbfleisch, Wheeling; Dr. R. O. Rogers and Dr. M. W. Sinclair, Bluefield; Dr. C. E. Gwinn, Beckley; Dr. W. H. Riheldaffer, Lost Creek; Dr. M. L. Dillon, Charleston, and Dr. Ivan Fawcett, Wheeling.

FLEET INSURANCE FOR MEMBERS

Several weeks ago the Supreme Court of West Virginia ruled that the Flat Top Insurance Company of Mercer County could

not be restrained from issuing fleet automobile insurance coverage to organized groups. As a result of this decision, the members of the West Virginia State Medical Association are now eligible for a fleet rating on their cars, providing their automobiles are insured as an organized group.

Last December the Council of the Association authorized the office of the Executive-Secretary to negotiate for fleet coverage for Association members. Acting under this authority, a fleet arrangement has just been worked out with the American Motorists Insurance Company of Chicago for a substantial saving on all member automobiles insured through the Association.

Briefly the fleet plan involves a 15 percent reduction on member insurance providing more than 25 members take out coverage in the fleet. If 50 or more members carry coverage in the fleet, through the Association, the reduction will be increased to 20 percent. In addition a dividend will be allowed on the group experience which will probably average about 20 percent each year.

We assume that there will be considerably more than 50 members of the Association who will be glad to take advantage of this saving on automobile insurance. In that event the actual saving will be approximately 40 percent of the manual rate, represented by the 20 percent fleet reduction and the 20 percent dividend on the group experience. It is hardly necessary to point out that the American Motorists Insurance Company is duly licensed to transact business in West Virginia under the insurance laws of this state.

For the past several years a number of members of the Association have carried their automobile insurance through the Association on a dividend basis, which has averaged a saving of approximately 20 percent each year. This coverage will still be handled, at least until these cars are transferred over to the fleet coverage.

Local representatives of the American Motorists Insurance Company are located in every section of the state and all claims and adjustments under the fleet policy will be handled by these local agents. Through this method of local adjustment, it is felt that the claims under the fleet policy can be handled much more quickly than through the Association.

Members of the Association who wish to take advantage of the fleet coverage should get in touch with the Executive-Secretary at once. Even if the present policy of a member does not expire until next fall or winter, arrangements can now be made to transfer the coverage when the expiration takes place. All members of the Association are eligible for this coverage.

OUR SOOT-SMEARED CAMPS

Some days ago the American Academy of Political and Social Science held a joint meeting with the Philadelphia College of Surgeons at the Irvine auditorium in the Quaker City. The subject under discussion was "Socialistic Medicine." During a rather heated debate, one of the opponents pointed out, "We already have a few isolated examples in America, namely the dismal soot-smeared mining towns of Kentucky and West Virginia."

We have no comment to make on this unsolicited recognition of West Virginia, except to point out the fortunate circumstance that placed this meeting in Philadelphia rather than Pittsburgh.

THE VENEREAL DISEASE PROBLEM

The West Virginia Board of Control has recently set aside a cottage at the State Industrial home for girls for the isolation of inmates afflicted with venereal disease. This step was made for the purpose of protecting

inmates not infected and to establish a clinic where the disease may be competently treated. According to the Board of Control, a considerable number of girls confined at the Industrial school are afflicted with venereal disease upon admittance.

Admittance to the Girls Industrial school is contingent upon an affidavit from a licensed physician certifying that the prospective inmate is free from infectious and contagious disease. Therefore, if the position of the Board of Control is correct, the responsibility for this condition rests upon the physicians who have been negligent in allowing diseased girls to be sent to the Industrial school.

We assume that the West Virginia Board of Control has made a thorough medical survey of the school inmates under the direction of a competent physician. If so, then the complaint against some of the county examiners is probably justified. If not, then such a survey should be conducted without delay.

The above matter has been called to the attention of the JOURNAL by Dr. A. E. McClue, State Health Commissioner. Dr. McClue stated in his letter that in many cases the examining physician found himself unable to secure a Wassermann test performed in a private laboratory. He pointed out that the State Hygienic Laboratory would be very willing to coöperate with the physicians in this matter to the extent of furnishing Wassermann tests and also laboratory examinations for gonnorrhea. Such examinations and tests would only be made, however, upon receipt of a statement from the physician certifying that the patient was a charity case.

The JOURNAL has received no figures from the Board of Control relative to the percentage of infected girls at the Industrial Home, where they came from, whether the examinations were made by county or private physicians, and whether or not laboratory tests were available. Such informtaion would, in our opinion, be both interesting and enlightening.

COUNTY SOCIETY NEWS

PARKERSBURG ACADEMY

Dr. John A. Kolmer, Professor of Medicine at Temple University, will be the scientific essayist at the March 1 meeting of the Academy of Medicine of Parkersburg which will be held at the Chancellor Hotel. Dinner will be served at 6:30 o'clock and the scientific meeting will follow.

Dr. Kolmer's subject will be "The Specific Treatment of Pneumonia." Discussion will be opened by Dr. D. A. MacGregor, Wheeling, and Dr. Walter E. Vest, Huntington. General discussion will be limited mostly to the asking of questions. Invitations to this meeting have been extended to all the neighboring county medical societies and an attendance of 150 doctors is anticipated.

A testimonial dinner in honor of Dr. Roy Ben Miller, President, West Virginia State Medical Association, was held at the Chancellor Hotel on the evening of February 8. The affair, which was widely attended by the doctors and their wives, was sponsored by the Woman's Auxiliary to the Academy. Mrs. S. M. Prunty acted as Toastmaster for the occasion. Speakers included Mrs. W. B. Richardson, Auxiliary President; Dr. E. W. Crooks, President of the society; Mr. Joe W. Savage, State Secretary, and Dr. Miller.

WELCH ENGLAND, *Secretary.*

CABELL COUNTY

The February 8 meeting of the Cabell County Medical Society was held at the Hotel Pritchard, Huntington. The scientific program was presented on the subject of "The Early Diagnosis of Cancer of the Cervix." Dr. James S. Klumpp gave the clinical presentation and Dr. F. C. Hodges gave the pathological demonstration.

The Cabell Society has recently a set of rules governing the duties of the Board of Censors in regard to the filing of malpractice suits against members of the society.

EDWIN MATTHEWS, *Secretary.*

OHIO COUNTY

Dr. Murray M. Copeland of the Union Memorial Hospital, Baltimore, was the scientific essayist at the February 2 meeting of the Ohio County Medical Society which was held at the Ohio Valley

General Hospital. His subject was "Neoplastic Diseases of the Intra-oral Cavity and the Jaws." A liberal general discussion followed.

Dr. R. R. Snowden of Pittsburgh spoke at the February 16 meeting of the Society on the subject "The Treatment of Hyperthyroidism." His paper was also thrown open for general discussion. These were both interesting and instructive programs.

RUSSELL C. BOND, *Secretary*.

MONONGALIA COUNTY

Dr. Russell B. Bailey of Wheeling was the principal speaker at the February 6 meeting of the Monongalia County Medical Society. His subject was "Cancer Control" and his address was discussed at considerable length by the members present.

This meeting was held at the Morgantown Country Club and was preceded by a dinner at 6 o'clock. There was a fine attendance turned out for this meeting.

G. R. MAXWELL, *Secretary*.

RALEIGH COUNTY

A discussion on Oxygen Therapy in Pneumonia was presented at the February 1 meeting of the Raleigh County Medical Society which was held in the Presbyterian Church at Beckley. The speaker was Mr. Jack McKernon of the Linde Air Products Company of New York City and his talk dealt chiefly with the apparatus used. Dr. S. M. Simon, Huntington, then read a very interesting and instructive paper on "Recent Advances in Diagnosis and Treatment of Pulmonary Tuberculosis."

Following the scientific program, officers were elected for the ensuing year. Dr. L. E. Shrewsbury of Beckley was elected President; Dr. E. W. Wood and Dr. E. H. Hedrick, Beckley, vice-presidents, and Dr. L. M. Halloran, Beckley, secretary-treasurer. Dr. Robert Wriston, Dr. H. R. Hicks and Dr. D. L. Hill were elected to the Board of Censors.

Delegates to the State Meeting at Huntington in May were also elected at this meeting. The delegates are Dr. J. E. McKenzie, Dr. W. W. Hume and Dr. L. M. Halloran. Alternates are Dr. T. F. Garret and Dr. D. B. Jarrell.

L. M. HALLORAN, *Secretary*

KANAWHA COUNTY

A practical demonstration on the Mechanics of Oxygen Therapy featured the January 30 meeting of the Kanawha Medical Society which was held at the Daniel Boone Hotel, Charleston. Mr. Jack McKernon of New York, a representative of the Linde Air Products Company, was the principal speaker. This was followed by a moving picture on "Graphic Representation of the Heart Beat," which was secured and presented by Dr. R. D. Roller. Dr. E. W. Owens, Spencer, was admitted to membership.

Dr. T. M. Barber, Charleston, and Dr. Gilbert Daniel, Walton, were the essayists at the February 13 meeting of the Society. Dr. Barber's paper was on "Scarlet Fever." He was followed by Dr. Daniel with a paper on "Scarlet Fever Immunization with a Scralet Fever Toxoid." Both of these papers were interesting and instructive and were freely discussed by a large attendance. During the business session which followed, Dr. B. W. Swint explained some of the provisions of Emergency Medical Aid under the E. R. A., and Dr. P. A. Tuckwiller introduced a resolution, which was adopted, calling for an investigation of "list" hospital practice in Kanawha County.

The February 27 meeting of the Society was featured by a Symposium on Cancer which was presented by Dr. John E. Cannaday, Dr. M. Gillies, Dr. R. H. Walker, Dr. B. W. Swint and Dr. J. Ross Hunter. This was featured by an abbreviated Canti cancer film furnished by the American Society for the Control of Cancer.

ANDREW E. AMICK, *Secretary*

MARION COUNTY

The January 30 meeting of the Marion County Medical Society was held at the Fairmont Hotel with 36 members in attendance. The essayist of the evening was Dr. Archer A. Wilson, Charleston, who gave a splendid presentation on "Aids in the Diagnosis in Certain Neuro-Psychiatric Conditions Met With in Private Practice." His paper was liberally discussed.

Honorary membership was conferred at this meeting on Dr. C. O. Henry, Dr. H. R. Johnson and Dr. A. L. Peters, all of Fairmont. The Society has requested the Council of the West Virginia State Medical Association to concur in this election.

DR. GEORGE TRAUGH, *Secretary*

FAYETTE COUNTY

A special meeting of the Fayette County Medical Society was held at the Hill Hotel, Oak Hill, on the evening of January 29 for a talk on "Treat-

ment of Pneumonia in the Home by Oxygen Therapy," by Mr. Jack McKernon of New York, special representative of the Linde Air Products Company. This was a demonstration of both the tent and other methods and was liberally discussed by the members present. There was only a sparse attendance, due to inclement weather.

RALPH HOGSHEAD, *Secretary*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Soceity held its regular quarterly meeting at Sutton on the evening of February 8 with a good attendance. The meeting was held in the Rotary Club rooms and a fine dinner was served at 6:15 o'clock. An address of welcome was delivered by Mr. Van B. Hall of Sutton.

The scientific program was presented by Dr. Arthur E. McClue, State Health Commissioner, Dr. Robert C. Hood, Clarksburg, and Dr. George F. Evans, Clarksburg. This provided a most interesting and instructive program and there was much discussion.

The next meeting of the Society will be held at Summersville in May.

EUGENE S. BROWN, *Secretary*

WYOMING COUNTY

The regular monthly meeting of the Wyoming County Medical Society was held at the June Tolliver Hotel, Mullens, on the evening of February 8. The program was furnished by Dr. Thomas Nale of Glen Rogers and Dr. Ward Wylie, Mullens, and Lieutenant Leonard Greenbaum, Medical Officer at Camp Wyoming.

Dr. Nale spoke on "The Use of the Umbilical Cord Clamp." Dr. Wylie and Dr. Greenbaum presented a joint report on 23 cases of mumps. Dr. Nale is a new member of the Society, having recently transferred from Kanawha County.

In addition to Dr. Nale, the Society has recently taken in two other new members. They are Dr. J. E. Robins, Glen Morrison, and Dr. J. O. Bailiff, Mullens, transferred from Raleigh County.

WARD WYLIE, *Secretary*

MARSHALL COUNTY

New officers of the Marshall County Medical Society elected at the year-end meeting are Dr. C. G. Morgan, President; Dr. R. A. Ashworth, Vice-President and Dr. J. A. Striebich, Secretary-Treasurer. Censors are Dr. Don Benson, Dr. O. P. Wilson and Dr. J. C. Peck.

Dr. Russell B. Bailey, Wheeling, was the speaker at the January 24 meeting of the Society which was held at the Merry Tavern, Moundsville. His subject was "Cancer of the Breast" with a lantern slide demonstration. His paper was widely discussed by the members present.

J. A. STRIEBICH, *Secretary*.

GREENBRIER VALLEY

The regular meeting of the Greenbrier Valley Medical Society was held at the General Lewis Hotel at Lewisburg, Tuesday, January 23. The program consisted of a very excellent paper by Dr. G. H. Barksdale of Charleston on the subject of "Digitalis in the Treatment of Cardiac Disease," which was discussed by Dr. D. G. Preston of Lewisburg. Dr. R. K. Buford also of Charleston read a very interesting paper and also showed a film on "Thyroid Disease."

Following these papers there was a report of the Secretaries Conference in Charleston, Tuesday, January 16 by the Secretary. Mrs. Kathryn Trent was presented to the Society and gave a report of the relief work that is now going on in West Virginia. A general discussion of this relief program was held by the members and the meeting was adjourned.

A. G. LANHAM, *Secretary*

DISTRICT MEETING PLANNED

A district meeting of the Sixth district is being planned for Charleston on March 27 by Dr. G. G. Irwin and Dr. G. A. Smith, Sixth District Councillors. Dr. William Dameshek of Boston, has already accepted an invitation to deliver the scientific essay on the subject, "Primary Hypochromic Anemia." Dr. Dameshek's articles on this subject have attracted wide attention and his address will deal chiefly with a comparison of certain compounds of iron in the treatment of Hypochromic Anemia. Discussants have not yet been selected.

The district meeting will be held at the Daniel Boone Hotel, Charleston, and plans are now being made for a "Dutch" dinner preceding the scientific assembly. Dr. Dameshek expects to arrive in Charleston on the morning of March 27 and a clinical demonstration will probably be arranged at one of the Charleston hospitals for the afternoon.

Invitations for this meeting will be extended to all county societies in the Sixth district and also to all neighboring county societies. A large attendance is expected.

MERCER COUNTY

The regular monthly meeting of the Mercer County Medical Society was held in the Director's Room of the Municipal Building, Bluefield, on the evening of January 23. There were 26 members and 12 visitors present.

Business matters included a report from the County Committee on Medical Relief. The recommendation in the report were adopted and a copy was ordered mailed to all members of the Society. Mr. C. F. Tynes, C. W. A. injury clerk, then explained the fees and procedure in injury cases. Under suspension of the rules, Dr. J. T. Peters of Princeton was elected to membership.

A sound picture on Insulin was then presented through the courtesy of the Eli Lilly Company of Indianapolis. The picture showed the manufacture, standardization, purification and clinical uses and also covered the dietetic treatment of diabetes. This was thoroughly enjoyed by everyone present and a vote of thanks was extended to the Eli Lilly Company. R. R. STUART, *Secretary*

COMMERCIALIZED MEDICINE

So-called "state medicine" has been so pushed to the fore in all recent discussions involving the social significance of medicine, that we are inclined to the belief that our vision is becoming obscured to a possibly more immediate serious threat to the public welfare.

Wherever the commercialization of medicine has been in effect, the competition between services has always been on the offering of more service for less money. The public, unable to differentiate between grades of service, more frequently relies upon the advertising.

Periods of economic pressure on a whole people, serve to place great emphasis on costs. Such periods offer opportunities for many physicians to enter into various schemes of commercialized medicine. That some will yield because of the economic pressure is inevitable but we venture the prediction that the well trained physician who yields to this stress of the times will find himself in an unenviable position before the public in the years to come. The public does not relish being fooled and a day of reckoning is a certainty for those who lend themselves to schemes which would capitalize the public's demand for economy by furnishing a commercialized cheapened service when life itself is at stake.—*Wisconsin Medical Journal.*

GROUP HOSPITALIZATION

(Due to the widespread interest in the various phases of group hospitalization plans, we publish herewith a review of the various plans written by C. Rufus Rorem, Ph.D. and published in the Western Hospital Review.)

Group hospitalization should be organized so as to benefit the three groups concerned: the patients, the hospitals and the medical staffs.

1. Benefit to the patient is the aim of hospital service, and group hospitalization plans should be established with this public service in view. The primary purposes of group hospitalization should be to enable persons of limited means who value their independence to pay for their own hospital care, and to make possible the systematic inclusion of hospital costs in family budgets.

2. Hosptials should be adequately remunerated. They should be paid reasonable sums for services rendered to patients under group hospitalization plans; "reasonable sum" means a sum approximately equal to operating costs but need not be unduly fixed charges. In any event the subscriptions should more than cover the service costs incurred on behalf of the subscribers. Profits should not be sought under this system.

3. Group hospitalization should be so administered as to encourage high standards of medical care.

4. Participation by hospitals in group hospitalization should be coöperative rather than competitive. Group hospitalization plans should therefore include all hospitals of standing in the community.

5. Group hospitalization plans should not be commercialized. Skilled and experienced guidance is required in actuarial matters and the promotion and business management of such plans, but administrative expenses should be kept within the narrowest limits compatible with such service. Hospitals should not enter into contracts with business agencies which have the finances and management of such plans wholly under their control.

Suggested Procedures for Group Hospitalization Plans: 1. *Exclusion of Professional Fees.* Subscribers will be accepted for hospitalization only upon recommendation of a physician. The plan should not interfere with patient and physician or physician and hospital. Group hospitalization plans are not intended to cover any but hospital charges and should not include payments for services rendered by private physicians.

2. *Choice of Hospital by Subscriber.* The group hospitalization plan should be such as to render its benefits available in any participating hospital selected by a subscriber to which his physician has access or is acceptable.

3. *Admission and Treatment of Patients.* Patients under group hospitalization plans should be admitted in the usual manner at the initiative of their physician and should be cared for under the regular hospital rules governing professional services. The arrangement of professional fees between physician and patient should be regarded as a private matter not affected by the plan. The plan should be so devised as to avoid requiring hospitals to change their established policies with reference to medical staff or medical classes of patients admitted.

4. *Groups Preferable to Individual Subscribers.* The enrollment of individual subscribers requires higher costs in initiating and administering the plan and fails to develop a feeling of group solidarity. If subscribers are individually enrolled, they should be accepted only upon voluntary application and should generally pay a higher subscription rate in fewer installments. So far as possible the plan should be based upon arrangements made with subscribers regularly employed as members of already associated or organized groups.

5. *Employed Persons.* In some cases employed persons become eligible only after a definite period (one month to three months) of employment. Physical examinations are not required where large groups are simultaneously enrolled.

6. *Waiting Period.* Benefits accrue only after a waiting period (one to two weeks) from the time the membership begins. Where subscribers are individually enrolled, the waiting period should be somewhat lengthened.

7. *Hospital Benefits.* In so far as possible the annual subscription should cover all hospital charges to a patient. All routine hospital services should be included as a minimum, and special or additional charges should be eliminated as much as practicable. Extra charges for diagnostic and "special" services discourage prospective subscribers, and fail to provide protection for the patient on important costs. Benefits do not as a rule include hospital service of a kind not ordinarily rendered by community hospitals; thus acute venereal diseases, pulmonary tuberculosis, quarantinable diseases and mental diseases are usually excluded; obstetrics may be included after a reasonable waiting period.

8. *Stages in the Development of a Group Hospitalization Plan.* (a) There are three stages in the development of a plan. First, what may be called the technical stage, during which the hospitals themselves, with such legal and other advice as may be required, determine upon the services to be offered and the rates which they believe to be practical. Second, the promotional stage during which this plan has to be organized in working form and accepted by groups of persons who are ready to pay for the services offered. Third, the administrative stage when the plan is actually in operation and must be capably managed.

(b) In a community with only one hospital, what is referred to above as the technical stage should be developed by the governing body of the hospital with the counsel of its medical staff.

(c) In communities with more than one hospital of good standing the initial stage of the plan should be carried through by a representative group or organization of hospitals themselves, with the counsel of physicians of standing representing the hospital staffs and, if possbile, the local medical societies.

9. *Effective Presentation to the Public.* The problems of promotion and of enrolling groups of subscribers are not ordinarily familiar to hospital personnel and generally will require the participation of expert and experienced persons. In some instances it may be best to appoint a private agency, specializing in such work, to render service or to furnish persons who will render expert services, but payments to such agency should not be such as to diminish unduly the benefits received by subscribers. The control of the plan as well as the direction of activities incidental to it must remain in the hands of a group organized by or through the hospitals, on a non-profit basis, and must not be transferred to an enrolling agency.

10. *Legal Advice.* During the first or technical stage, group hospitalization plans should be discussed with competent legal counsel in order to insure that they conform to the laws of the state and locality. Insurance Commissioners in more than a dozen states have ruled that hospital service rendered to subscribers on an annual payment plan is not insurance.

11. *Finances.* In existing group hospitalization plans, from $6 to $12 per year is the range of rates charged. The amount required will vary with the general cost levels of the locality, with the scope and character of services offered, with the age and

occupational character of the subscribers, and according to the requirements for promotion and administration.

A time limit on the length of stay of all patients in the hospital during any given illness is usually requisite and is usually a three-week period. In order to forestall the disintegrating effects on the plan of widespread disaster it is usually provided that in case of such an event the hospital rendering the needed service should reimburse the subscriber with a specified amount, say an amount equal to the annual subscription (in a few instances twice this amount) if such subscriber must be denied admission.

When risk or expense is reduced by the enrolling of a large number of subscribers in a single group, or when the group is of such age or occupational class as to lower the risk, a reduction in the annual subscription rate may be allowed.

The basis on which hospitals are to be paid from the central fund should be alike for all, when similar services are offered to subscribers.

If estimates based upon past experiences indicate that the payments to be made will be sufficient to enable the fund to reimburse participating hospitals at a given rate per day (whether this be $5.00, $5.50, $6.00, $6.50 or $7.00) a fraction of this amount (50c to $1.00 per day) may wisely be withheld for distribution in whole or in part at the end of the fiscal year, in order to insure an equitable administration of the fund in case the morbidity rate for the year should be unexpectedly high.

The only question arises—how about the possibility of malingering or undue utilization or abuse of the plan? Patients are accepted in the hospital only on advice of physician and usually the criticisms arise from physicians. The solution of the problem is in the hands of the physicians. This solution of group hospitalization to a continuing problem did not arise with the Depression. It will not disappear with the return of Prosperity—whenever that is. It is a practical step to distribute cost, stabilizing hospitals serving pepole of limited means.

THE WESTON PLAN

(Editor's Note: As a matter of interest to our readers, we quote the following from a letter written by Dr. Irving J. Spear, Professor of Neurology at the University of Maryland School of Medicine, to Dr. J. E. Offner, Superintendent of the Weston State Hospital.)

I am very much interested in the plan to establish a Receiving Hospital at Weston and feel very optimistic as to the outcome. Your hospital should be and I believe will be the center for the Mental Hygiene movement in your state. By this I mean the spread of information and the education of your people for the prevention and cure of mental illness.

The idea of the Weston Hospital being the clearing house and the place of study, to me seems the most important step that the State of West Virginia has taken to remedy a very serious and ever-growing problem. I believe if this plan is honestly and intelligently carried out it will go far toward the amelioration if not the complete solution of your problem. You probably know that there has been a four-fold increase in the frequence of the occurrence of mental illness within the past fifty or sixty years.

I am today or tomorrow discussing your problems with Dr. Preston, the Commissioner of Mental Hygiene of the State of Maryland . . . . I want you to know that I am only too happy to do what I can to help you in any way.

C. W. A. and E. R. A.

Because of the widespread misunderstanding among physicians and medical groups in regard to the Civil Works Administration and the Emergency Relief Association, we are publishing below a copy of a bulletin sent out in January by the U. S. Employees' Compensation Commission to the State Civil Works Administrators relative to the selection of private physicians for compensation work.

First, however, it should be pointed out that E. R. A. pertains only to persons who are on direct relief. When they receive medical aid, their bills are paid for according to the E. R. A. fee schedule which was worked out by the Association. C. W. A. employees are, to all intents and purposes, private citizens who pay their own way. In case of accident in line of duty, however, they are protected by the U. S. Employment Compensation Commission and their bills are paid by that Commission.

The letter from the Commission to the state administrators follows:

"The list of physicians and surgeons, (Form CA-76), designated to provide treatment, where Federal Government medical facilities are not available or are inadequate, was for your temporary guidance only, as indicated by our telegram to you of December 22nd.

Please instruct your local administrations to consult the officers of their county or district medical societies at once to enlist the societies' coöperation as follows:

1. Ask them to share with you the responsibility of preparing a list of the local physicians to be authorized to provide treatment to supplement Federal Government medical facilities when these are not available or are inadequate. This list should include physicians in the locality (whether members of the local medical society or not) who are well qualified by training and experience to render compensation service, who are licensed to practice medicine in the state, and who desire to participate in this service under the regulations of the United States Employees' Compensation Commission. These regulations provide for fees not in excess of those charged by physicians generally to patients in the same income class as the injured person.

2. Have them indicate on this list physicians who, by training and experience, are especially qualified to handle unusual and special types of cases.

3. Request that they work out with you a mutually satisfactory plan for distributing the compensation work among the physicians on the list in as equitable a manner as possible. Any plan should provide for the immediate treatment of emergency cases, and for treatment by physicians well qualified to handle the particular type of case.

A cumulative record should be kept which will show the number of cases which have been assigned to each physician on the list."

Commenting upon the above communication, Dr. William C. Woodward, director of the Bureau of Legal Medicine and Legislation of the American Medical Association, wrote as follows:

"*To the Secretaries of State Medical Societies:*

I enclose herewith a copy of instructions which has been sent by the United States Employees' Compensation Commission to the several state civil works administrators, relative to the selection of private physicians to treat employees of the Civil Works Administration, for illness and injury arising out of the performance of duty.

The principles to be followed by the United States Employees' Compensation Commission and the Federal Civil Works Administration in the *hospitalization* of Civil Works Administration employees have been agreed on. They have received the approval of representatives of the American Hospital Association, the Catholic Hospital Association, and the Protestant Hospital Association, and are to be recommended to the several institutional members of those organizations for acceptance. A statement of those principles will be sent to you within a few days.

The United States Employees' Compensation Commission holds that the law requires that patients entitled to hospitalization and/or medical service at government expense be referred to non-federal hospitals and to private physicians *only when United States hospitals and medical officers are not available.*"

FRIED FOOD

The popular feeling that all fried foods are hard to digest is unwarranted. Normally, fat is not difficult to digest, but being a concentrated food material it requires more time for the process.

With this knowledge as a background, Lulu G. Graves, nutrition and food consultant, discusses the proper cooking of fried foods in "The Fried Food Phobia," an article appearing in *Hygeia.*

"Care or the lack of it with any method of cooking contributes to the improvement or the spoiling of the finished product. Fried foods are no exception to this rule."

AUTOMOBILE INSIGNIAS

The question of the proper and improper use of automobile insignias by members of the medical profession comes up from time to time. Any duly licensed practitioner of medicine may display the caduceus emblem, but only members of county medical societies may display the official A. M. A. emblem of the West Virginia State Medical Association.

Chapter 16, Section 1, of the Acts of the 1925 legislature reads as follows:

"It shall be unlawful for any person to display upon a motor vehicle in this state the insignia or emblem of any motor vehicle club or similar organization, unless he shall be entitled to use the same under the constitution, by-laws, rules or regulations of such club or organization.

"Any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than ten nor more than fifty dollars."

THE YOUNGER PHYSICIANS

"What Is the Young Physician Worth?"

Writing on this subject in a recent issue of *The Milwaukee Medical Times*, Dr. William A. Ryan makes a stirring appeal on behalf of the young practitioners of medicine for the privilege of assisting in a solution of the important problems now confronting the medical profession.

"What lies ahead for the young practitioner breaking into the field of medicine today?" Dr. Ryan asks.

"If we are to accept the prophecies found in current litertaure on this subject, it would appear that the young physician is confronted with problems of real magnitude. Disturbing as his future may appear, however, his chief concern is with conditions as they exist today.

"It is often quite evident that the medical profession does not agree on its present-day needs. As one reads the various articles written by medical men, the confusion in the minds of many of them is apparent. Too often the writer views the situation from a purely personal angle. * * * The young physician sees in it all a Gordian knot that ties him hopelessly from the free and easy competition that would at least give him a chance to work out his destiny.

"It has been stated that were the majority of medical practitioners free from the influence of tradition and immediate professional necessities they would be in favor of state medicine. Perhaps such a statement was directed to the young practitioner; if so, nothing is farther from the truth. I believe expressions of feeling from many young physicians would show that we believe we should be farther from a satisfactory solution to our problems by accepting state medicine than by striving to succeed under the present system of medical practice."

Voicing regret at the tendency on the part of some older physicians to belittle the younger practitioners of medicine and at the apparent wide breach which has been engendered by some older men between themselves and their younger colleagues, Dr. Ryan said:

"There should be no distinction except that which is naturally to be expected, between the young and old. Closer association between the older and younger physicians is greatly needed. There is enough in common to draw both generations together and thereby allay considerable comment from lay public who are all too ready to criticize.

"We must meet together the economic unrest which certainly is a great factor in the interference with medical practice today. If only a small percentage of pressure were brought to bear upon industry which is being brought upon the medical profession, the economists of the country would no longer find time to attempt to correct an art such as medicine and much of the hue and cry about medical costs and state medicine would soon sink into insignificance.

"The physician of today has not retrogressed either in ability or in the ethics of the art of medicine. Regardless of the inroads of outside agencies, the physician will continue to care for the sick as long as the individual patient is capable of confiding in the physician of his choice. The young physician of today is not looking for special favors; he does not, however, want the practice of medicine to retrograde to where it was fifty years ago. He believes that scientific advancement—mechanical and otherwise—has a sound basis of fact. He wants only to be an integral part of a vast profession working for a common good, with less interference from outside agencies and a more unified plan of action between the older and younger members of the profession."

With their desire for unity of thought and action within the profession in order to preserve the traditions and principles which have made medicine what it is today, the present-day leaders of the profession realize the soundness and logic of the sentiments expressed in the foregoing comments.

Especially from an organization standpoint, it is highly important that more responsibility be placed on the shoulders of those who are destined to become the future leaders in medical organization. Although leadership can still be assumed by the seasoned members of the profession, whose experience and judgment is a vital cog in organization activities, there is a need for division of responsibility and effort in many communities. The younger practitioners have a right to expect an opportunity to voice their views concerning professional and organization activities, and to play an active part in the solution of present pressing problems. The existing lack of interest in organization matters displayed by some of the younger men in the profession may in part be due to the failure on the part of their older associates to provide them with the incentive and the opportunity to put their talent to work.—*Ohio State Medical Journal.*

WOMAN'S AUXILIARY

HARRISON COUNTY

The Harrison County Medical Society Auxiliary held its monthly meeting on February 1, 1934 at the Stonewall Jackson Hotel. Mrs. H. H. Haynes, President, presided with nineteen members present. During the meeting Mrs. E. N. Flowers reviewed Paul de Kruif's book, "Man Against Death." "Bundle Day" for the Thrift Shop, which is operated for the benefit of the Milk Fund, was observed by members of the Auxiliary on February 1. After the customary business was disposed of the meeting was adjourned and March 1 was designated as the date of the next meeting.

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha County Medical Society held its February meeting on Tuesday, February 13, following a luncheon at the "Tally-Ho."

Mrs. O. H. Bobbitt, President, presided at the meeting with thirty-five members and two guests present. Mrs. Fred E. Brammer of Huntington, Chairman of the State Committee on Hygeia, addressed the ladies present on the subject of "Hygeia." Following the usual business discussions the meeting was adjourned to reconvene on March 13.

MRS. J. E. RUCKER, *Secretary*

PARKERSBURG ACADEMY

The Woman's Auxiliary to the Parkersburg Academy of Medicine gave a testimonial dinner at the Chancellor Hotel on the evening of February 8 in honor of Dr. Roy Ben Miller, President of the West Virginia State Medical Association. There was a good turnout of both the doctors and Auxiliary members and a fine banquet was served. Mrs. S. M. Prunty served as toastmaster and talks were made by Mrs. W. B. Richardson, Auxiliary President; Dr. E. W. Crooks, President of the Academy and Mr. Joe W. Savage, State Secretary. Following this, Dr. Miller responded with a very timely and philosophical paper which dealt with many of his own experiences in the practice of medicine.

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society met on January 30, at the home of Dr. and Mrs. H. S. Keister, on Fourth Street. There were nineteen members and two guests present for the occasion with Mrs. George Traugh, Vice-President, as the presiding officer. The meeting was in the form of a dinner party with Mrs. George E. Bevans as the guest speaker. Mrs. Bevans gave a book review of "Anthony Adverse." The Auxiliary Public Relations committee is sponsoring a program on the general subject "Good Health", which meeting will be held February 8, in the Junior High School building in Fairmont, with Dr. J. Lewis Blanton as the principal speaker.

MRS. BEATRICE GOULD THOMAS, *Secretary*

TRAINING FOR BASEBALL

There are those who think that training for baseball is unnecessary, but nothing is farther from the truth, according to Alfred E. Parker, author of the *Hygeia* serial, "Training for Athletics and Health." His article in the February issue discusses training for minor sports, such as wrestling, boxing, lacrosse, cricket and hockey, and training for baseball.

"Baseball is a highly scientific game; the mere throwing of a ball, which may look easy, requires at least 400 of the 696 muscles in the body," Mr. Parker explains.

Although it is important for the player to build the muscles he uses in throwing, increasing stress is being placed today on speed in running; and therefore he must train as a trackman does. In addition he must train for the individual position that he plays."

CANCER FILM AVAILABLE

The abbreviated Canti cancer film has been made available for county medical societies in West Virginia through the courtesy of the American Society for the Control of Cancer. This film is being held at the University School of Medicine, Morgantown, and will be sent out to any county medical society upon request. The film may be secured by writing to Dr. John N. Simpson, Dean of the School of Medicine, or to the Executive Secretary at Charleston.

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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THE CLINICAL SIGNIFICANCE OF OXYGEN THERAPY*

By ALVAN L. BARACH, M. D.
New York City

(From the Department of Medicine, College of Physicians and Surgeons of Columbia University, and the Presbyterian Hospital, New York City.)

As a result of the effective administration of oxygen in pneumonia, certain effects have been generally noted, following its use in cyanotic patients, viz: (1) the bluish color of the lips and nail-beds is changed to a more normal pinkish color, (2) the pulse is frequently slowed, (3) the respiratory rate is at times diminished, (4) the patient is more comfortable, and delirium and restlessness are decreased. That oxygen therapy is a life-saving measure in pneumonia has not been subject to statistical proof, even in large series of cases, because of the complexities of the factors governing pneumonia mortality. In individual instances, the frequently striking improvement in the patient's condition has aroused the conviction that effective oxygen treatment was at times life-saving. [1, 2, 3, 4]. The subject was approached from a somewhat different point of view by the author[5] (in 1927) by observing, instead of the symptoms ameliorated by oxygen treatment, the symptoms that followed the abrupt withdrawal of oxygen therapy before the disease process in the lungs had cleared up. In six severely ill patients, the cessation of oxygen treatment resulted in such marked dyspnea, cyanosis and elevation in pulse and respiratory rates as to bring the patient to a state bordering on collapse. Replacement of oxygen treatment in these cases resulted in a disappearance of their symptoms and a return of the patient's condition to that present before removal.

The existence of this type of response not only illustrated the need of oxygen for proper maintenance of the function of the lung in patients with marked cyanosis and dyspnea but suggested that the inhalation of 40 to 50 per cent oxygen sustains life and, in a certain number, may, therefore, be a life-saving measure.

Soon after the discovery of oxygen by Joseph Priestly in 1774 and the elucidation of its function in respiration by Lavoissier, it became used in the treatment of all kinds of disease. It was indeed the life-maintaining substance in the air, but the claims made for it were extravagant and it gradually fell into

*Read before the W. Va. State Medical Association at Charleston on May 22, 1933.

disrepute. During the past two decades a revival of its use has taken place with effective methods which enable the patient to inspire between 40 and 60% oxygen in the atmosphere. The use of oxygen has to a considerable extent become recognized as a therapeutic agent capable of relieving the symptoms of oxygen-want and increasing the comfort of the anoxemic patient. The difficulty of obtaining statistical proof of decreased mortality rates as a result of its employment in pneumonia has, in the author's opinion, interfered with a full recognition of its usefulness. In the present report, examples will be given of the life-sustaining function of the inhalation of air mixtures containing 50% oxygen in cases of cardiac and pulmonary diseases.

The following case was reported in a previous study by Barach and Richards[6] of the effects of oxygen therapy in congestive heart failure. It is reproduced here because (1) the patient was losing ground on ward care and improved markedly on oxygen treatment, (2) because instances of the maintenance of cardiac function were provided by two periods of oxygen deprivation and (3) the patient ultimately was able to leave the hospital in an ambulatory state.

CASE NO. 1 (NO. 63261)

History: A. L., a colored woman, aged 55, was admitted to the hospital for the sixth time during the past five years on April 29, 1929, with a diagnosis of cardiac insufficiency and hypertrophy, auricular fibrillation, also chronic myocarditis and general arteriosclerosis. She was in a severe state of decompensation. Ten days before admission she caught a cold, which was followed by dyspnea, cough, frothy sputum and swelling of the extremities.

Physical Examination: The patient was old-looking, markedly uncomfortable, dyspneic and orthopneic, and had an anxious expression. The heart was greatly enlarged to the left and to the right, fibrillating, with a rate between 90 and 100; the pulse was very feeble. A loud systolic murmur was heard over the precordium. The blood pressure was 140 systolic and 80 diastolic. Numerous sibilant and a few moist râles were heard over the lungs. The liver was palpable midway to the umbilicus. There was moderate edema of the extremities. The Wassermann reaction of the blood was negative. The blood urea was 0.40 cm. per liter. The excretion of phthalein was 35 per cent in two hours and a quarter.

Course: The patient improved temporarily after phlebotomy and the administration of salyrgan and digitalis. At the end of six week's residence in the hospital she was still uncomfortable, with marked dyspnea and epigastric distress. The edema in the legs was increased, while fluid was accumulating in the abdomen and chest. On June 10th, she was transferred to the oxygen chamber, in which the atmosphere contained an oxygen concentration of 45 per cent. Striking improvement occurred in her general well-being within three hours and relief from dyspnea within six hours. During the first four days in the oxygen chamber, she was more comfortable and entirely relieved from orthopnea, though the epigastric discomfort persisted. She was then removed from the chamber, and in the next twenty-four hours the pulse rate rose from 70 to 90, the temperature from 99 to 100 F. and the rate of respiration from 20 to 38. Dyspnea and orthopnea returned. For part of the time during the next four days she received oxygen by nasal catheter, obtaining slight relief, and part of the time she spent in an oxygen tent, with moderate relief. On June 21st, she was returned to the oxygen chamber, the oxygen concentration being 45 per cent. On the following day the dyspnea and orthopnea were greatly decreased. The patient was kept in this atmosphere for seventeen days, at the end of which time her condition was improved; there was no orthopnea, little epigastric distress and a slight cough. The edema of the legs and the ascites had decreased considerably, but had not disappeared entirely. The oxygen concentration in the chamber was then lowered to 19 per cent for five days. Dyspnea and

orthopnea reappeared and the patient's vital capacity was only 520 c.c. The liver was palpable almost to the umbilicus. There was a reaccumulation of edema, and decrease of the urinary output. In the next three days with the oxygen concentration at 25 percent, she showed definite improvement, and the urinary output increased. The concentration of oxygen was then raised to 42 per cent and the patient experienced a return of general comfort and increased diuresis. During the three days before she was returned to the ward, the oxygen concentration was gradually lowered, and she was removed from the chamber with no increase in dyspnea or orthopnea. In the ward she continued to improve, her vital capacity increasing to 940 c.c. The urinary output was strikingly increased over the intake of fluids during the patient's residence in an atmosphere containing a high degree of oxygen and lowered during the periods when she inhaled a low amount of oxygen. She was finally able to sit in a chair, and on August 1st, she left the hospital much improved. Later, while at home, decompensation again developed, dyspnea and edema increased progressively, and she died on October 29th.

Case No. 2

The next case is abstracted from a previous publication by Levy and Barach[7] on the use of oxygen in coronary thrombosis. H. R., a lawyer, aged 38, with no previous illness so far as he could recall, had been a spasmodic drinker but for two years had not touched alcohol. He had always smoked heavily. There were no cardiac symptoms until two weeks prior to the present attack, when he first noted substernal pain induced by effort, lasting only a few seconds. It recurred a number of times but was never severe enough to cause alarm or require cessation of activity.

On the morning of December 28th, while in bed, the patient was awakened at 1:30 by sharp substernal pain, radiating to both arms. About an hour later he vomited. The pain was constant and severe at first but gradually abated, so that no sedative was given by his physician.

He was seen at his home at 7:45 a. m. His color was ashen. There was moderate cyanosis of the lips and ears, but no dyspnea. Suffering was apparently not extreme. The heart was not enlarged on percussion. The sounds were weak. The rate was 96, the rhythm regular. In the fourth left interspace, close to the sternum, a sharply localized scratchy rub was heard. The aortic second sound was feeble. The blood pressure was 96 mm. of mercury systolic and 66 diastolic. The lungs were clear. The abdomen was soft and the liver was not enlarged.

A diagnosis of coronary thrombosis was made, and the patient was given morphine sulphate, 0.01 gm. by hypodermic injection. Two hours later he was removed to the Presbyterian Hospital in an ambulance.

Cardiac pain became more severe and during the first twenty-four hours he was kept comfortable and drowsy by sedatives. The leukocyte count on admission was 19,900, with 84 per cent polymorphonuclears. The temperature rose to 101 F. The blood pressure level remained unchanged. The heart rate was 100; the rhythm was regular. Digifolin 0.9 gm. was administered intramuscularly in three doses at six hour intervals.

The patient passed a comfortable night. At 8 a. m., December 29, the nurse observed that the speech was thick and by 8:30 a. m. he was unable to articulate. Right facial weakness was noted, as well as complete paralysis of the right arm and partial paralysis of the right leg. The pulse was more rapid and thready. The blood pressure was 94 systolic and 75 diastolic. A bit of clot had apparently broken off from an intraventricular thrombus and had lodged in the left lenticulostriate artery.

By 10:30 a. m. the heart sounds had become very weak and a gallop rhythm was heard. The heart rate was 130. Respirations were rapid and labored. There was extreme cyanosis and profuse perspiration. Moist râles were present at the bases of the lungs. The patient was conscious, though dull. No more digitalis was given because

of the possible danger of rupture of the heart. Hypodermic administration of caffeine sodiobenzoate was begun. The patient was placed in an oxygen tent, in which the concentration was quickly raised to 45 per cent.

The cyanosis was promptly relieved by oxygen. Respiration became less labored, though it was at times periodic in character. By afternoon the heart sounds were distinctly stronger. The rate was slower and on the following morning was 84 a minute. He began to talk and to move the right hand. The blood pressure was 98 systolic and 76 diastolic.

After he had spent four days in an atmosphere containing 45 per cent of oxygen the tent was removed, the concentration gradually having been lowered, over a period of hours, to 35 per cent. Within a short time the cyanosis returned; the heart rate became more rapid, and Cheyne-Stokes breathing recurred. The temperature, which had been falling gradually, again rose to 101.6 F. After a lapse of twelve hours, during which the patient's condition became alarmingly worse, the tent was replaced. There was prompt relief, as evidenced by disappearance of the cyanosis, slowing of the heart rate, return of regular, quiet breathing, and a fall in temperature. When the tent was removed on the following day, the same sequence of events was observed and on this occasion it was put back after half an hour. The circulation was clearly unable to supply the demands of the body unless the inspired air was enriched by additional oxygen.

On the ninth day after the onset of illness and after approximately seven days in an atmosphere of 45 per cent oxygen, the patient was taken out of the tent without the appearance of untoward effects. From this time on, improvement was slow but continuous. Speech gradually returned and the patient recovered almost complete use of the right arm and leg.

At the time of his discharge from the hospital, February 18th (seven and a half weeks after admission), there was still a faint gallop rhythm at the apex.

Three electrocardiograms which were taken show changes such as are often seen following myocardial infarction. Of particular importance are the appearance of defective intraventricular conduction and alterations in the T waves.

The patient remained at home for six weeks, slowly resuming activity. He then went to Alabama for a prolonged convalescence. He died suddenly in his bath about four and a half months after the onset of his illness.

The sequence of events in this case allows the interpretation that the employment of oxygen therapy maintained an adequate circulation and the heart had an opportunity of recovering from its acute functional disturbance.

CASE NO. 5, HISTORY NUMBER 71102. (SOUTHWICK) FEMALE, AGE 28.

Family and Personal History: Irrelevant.

Past History: Four years ago, patient had an acute bilateral otitis media, complicated by sinusitis and right mastoiditis.

Present Illness: Five days before admission, the patient developed a sore throat, which was swiftly followed by increasing cough, fever and malaise. The sputum became blood-tinged, and substernal tenderness was present for the two days preceding her admission to the hospital, March 6, 1932.

Physical Examination: Revealed an acutely ill young woman with flushed cheeks. Temperature 105, pulse 130, respiratory rate 30. Her throat was diffusely reddened. Marked tenderness was present over both sides of the neck, extending to the upper half of the sternum. Lungs were clear. Heart not enlarged, rate rapid, without murmurs. B. P. 124 73. W. B. C. 16,000. Polys 85%. Throat culture showed a streptococcus viridans. Admission blood culture was sterile.

Course: On the following day, March 7th, the patient was more prostrated. Edema appeared over the subcutaneous tissues of the upper neck and sternum, with increasing tenderness. The lungs now showed dullness, diminished breath sounds and fine crepitant

râles over the R. L. L. On March 8th, she became cyanotic and more prostrated. Frank consolidation of the R. L. L. was now present, and moist râles were audible over the L. L. L. and R. U. L. Her breathing became very labored and she was transferred to the oxygen chamber, the oxygen concentration being maintained at 50 per cent. On the next day, slight cyanosis persisted in spite of the inhalation of 50 per cent oxygen. Her breathing was still labored and audible tracheal râles were heard through the room. The examination of her lungs now revealed, March 9th, definite signs of consolidation in the R. L. L., L. L. L., L. U. L., and the R. M. L. The only uninvolved lobe, the R. U. L. was hyperresonant. The advancing pulmonary infection was so extensive and swift as to obscure any result from oxygen therapy in the way of clinical improvement. The almost maximal extent of consolidation in the lungs, as well as the diffuse pulmonary edema, constituted such a severe interference with pulmonary function that it appeared that a withdrawal of oxygen at this time would have resulted in prompt asphyxia. The white blood count rose to 21,750, polys 92.5. Her condition changed little during the next two days when aspiration of the right chest obtained a thin purulent fluid which on culture grew a hemolytic staphylococcus aureus. On the following day, March 12th, the blood culture was positive for the same organism. Her condition continued desperate, tracheal râles being audible through the room, with a slight decrease in temperature and pulse. Three aspirations were performed, and on March 14th, a thoracotomy with rib resection was performed under local anesthesia, the patient inhaling 55 per cent oxygen in an oxygen tent during it. The transfer from the oxygen chamber to the operating room was made with the patient inhaling 4 liters oxygen per minute through a nasal catheter.

Proof of the belief that her life was being sustained by the inhalation of 50 per cent oxygen would have required the cessation of oxygen treatment. In a previous study[5] in which cases of severe pneumonia were withdrawn from an oxygen-enriched environment, the symptoms of collapse were observed which cleared when oxygen treatments were again instituted. In two patients, however, in whom the cessation of oxygen treatment took place through a misunderstanding of the severity of the pulmonary involvement, death occurred, in the first case, in ten minutes and in the second in an hour after removal. A third instance of this character has since been observed. In a previous report by Barach and Richards of the effects of oxygen therapy in congestive heart failure[6], a case was described in which collapse followed the removal from the oxygen chamber with recovery to her previous condition after reentrance to the chamber. A second emergence from the chamber, even in the presence of oxygen from a nasal catheter, was followed by a course which ultimately ended in death. (Case 5 in report.) In other communications by the authors mentioned[8] of the effects of oxygen therapy in severe chronic pulmonary disease, the phenomena of collapse are recorded following removal from an oxygen-enriched atmosphere in cases characterized by marked impairment of pulmonary function. Because these effects have been previously observed, it seemed unjustifiable in this patient to carry scientific proof to the extent of subjecting her to an anoxemic reaction which the nature of the case and the severity of the pulmonary involvement indicated would be exceedingly dangerous.

For five days following operation, the patient's condition continued to be precarious. Three blood cultures were again positive for hemolytic staphylococcus aureus, which was also found in the pus recovered at operation. The temperature then began to decline, and three days later she was removed from the chamber on a nasal catheter. The subsequent course was that of slow improvement, and ten weeks later she left the hospital, and is now entirely well.

The extent of the disturbance in pulmonary function and the clinical condition of the patient constituted the evidence upon which this case is included as an instance in which

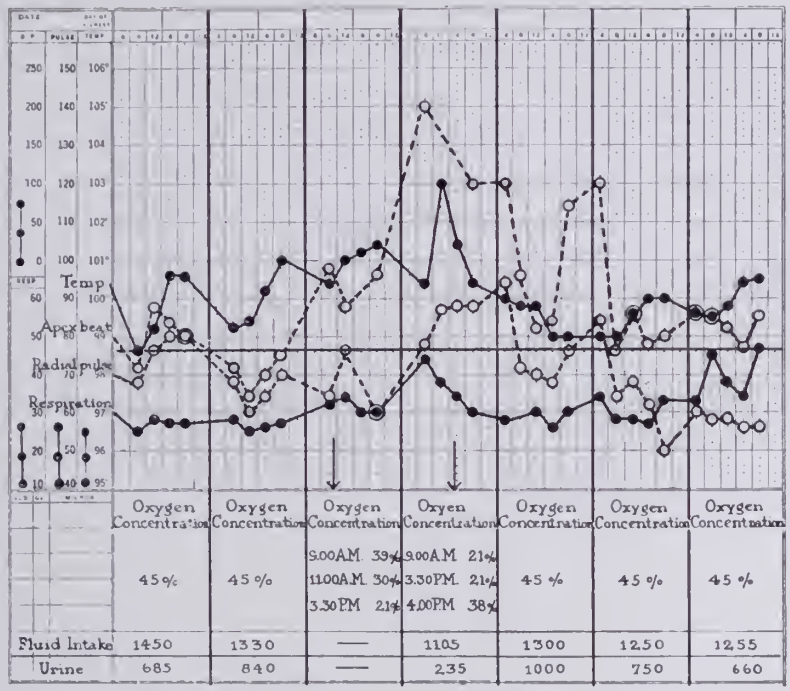
oxygen therapy sustained life until the lungs themselves had improved to the degree that she could carry on without oxygen.

In patients previously reported the inhalation of 50% oxygen maintained life until their cardiac or respiratory function in respect to the absorption of oxygen had improved and the acute condition somewhat subsided. There are cases of chronic pulmonary disease in whom oxygen therapy sustained life over much longer periods[8]. In two patients who had severe fibrosis of the lung, oxygen therapy was continued for 5 to 6 months continuously. During this time temporary cessation of oxygen treatment repeatedly brought on symptoms of cardio-respiratory embarrassment. In the first case, that of a man 30 years old, extreme pulmonary fibrosis was associated with cardiac decompensation. Withdrawal of oxygen therapy was followed not only by severe dyspnea and cyanosis but by return of edema, signs of cardiac insufficiency and fever. At the end of five months he was able to dispense with oxygen and carry on a life of limited activity. One year later, he had to enter the hospital again with marked dyspnea, cyanosis and generalized edema. The inhalation of 50% oxygen was followed by prompt subsidence of his symptoms; his cyanosis was lessened, dyspnea completely relieved and the generalized edema cleared. After three months of oxygen treatment he returned home, but soon required oxygen again for two to four hours daily through a nasal catheter. In the second case, the fibrosis of the lung was progressive (perhaps carcinoma?). The patient was a woman of 50 who at rest breathed as high as 60 per minute, and manifested severe dyspnea, cyanosis and paroxysmal coughing. During the first two months in the oxygen chamber she was comfortable at an oxygen concentration of 40 to 50%. Her respirations declined to 24 to 28 at rest. Later, following an attack of lobar pneumonia (a contact infection from her daughter) the pathological changes in her lung appeared to increase. The oxygen concentration in the chamber was raised to 50% and finally 55%, occasionally to 60%, to keep her in comfort. The patient was unable to live outside of the chamber without oxygen. At first one hour, and later, five minutes, would induce symptoms of impending collapse, marked cyanosis, profound dyspnea and rapid thready pulse. Death finally took place at the end of 6 months from what appeared to be a cerebral thrombosis. During the greater part of her residence in the chamber, which generally contained 50% oxygen, she was comfortable, with only occasional dyspnea after exertion and little or no cyanosis. She ate normally, talked with her friends and carried on a life of activity restricted in movement but not in mental functioning. However, removal from the oxygen-enriched atmosphere was incompatible with life except for extremely short periods.

Another instance of long-continued oxygen treatment occurred in a man of 50 who had severe emphysema, finally resulting in profound dyspnea and cyanosis and impending cardiac failure. In 10 days he was restored to a state of moderate comfort and in three months was able to dispense with oxygen. One year later, a recurrence of dyspnea at rest, cyanosis and extreme weakness necessitated a second course of oxygen treatment of two months. He is now (1 year later) able to walk slowly and carry on a life of extremely limited physical activity with only periodic use of oxygen.

An additional type of chronic pulmonary disease may be mentioned. A young man of 26 years who had progressive bilateral tuberculosis, finally developed extreme dyspnea, cyanosis and weakness. He was placed in a chamber containing 50% oxygen, with marked relief of dyspnea and cyanosis. The steady increase in the tuberculous process was not checked but he lived for three months without the symptoms of severe oxygen-want that manifestly were about to end his life.

In the series of cases of congestive heart failure mentioned above[6] the authors reported a marked relief of dyspnea and cyanosis as well as a definite diuresis specifi-



Hospital chart of patient showing changes following her withdrawal from at atmosphere containing a high degree of oxygen for 20 hours.

cally due to the continued inhalation of an atmosphere containing 45 to 50% oxygen. Additional unpublished cases have confirmed the original observation that relief of arterial anoxemia in cardiac insufficiency results in suitable cases in a gradual disappearance of the symptoms of oxygen-want. In this type of case, removal from the oxygen-enriched atmosphere before compensation has been regained resulted in certain instances in severe symptoms of cardio-respiratory embarrassment. One patient will be mentioned in whom life was maintained by the inhalation of 50% oxygen.

A woman aged 32 years was admitted to the hospital with a diagnosis of cardiac insufficiency, chronic cardiac valvular disease, mitral stenosis and insufficiency, cardiac hypertrophy, auricular fibrillation and acute rheumatic fever. After a preliminary period of ward treatment during which she failed to respond she was placed in the oxygen chamber, oxygen concentration 45%. She subjectively improved. Her breathing became quiet, with little dyspnea and cyanosis much diminished. No diuresis took place. At the end of 17 days, the oxygen concentration was gradually lowered during a period of 6 hours to 21%. She was then removed to the ward. She became worse almost at once, with profound cyanosis, sweating and dyspnea. She grew progressively weaker and more prostrated. The pulse was very faint. The systolic pressure was 90, the diastolic could not be obtained. She voided no urine and none was found in the bladder on catheterization. After twenty-four hours in the ward, she was returned to the oxygen chamber. Improvement was noticed almost at once with increased strength, easier breathing, slower and firmer pulse and diminution in cyanosis. Her blood pressure after four hours was 120-73, and she then voided 125 c.c. of urine. On the following day she voided 1,000 c.c. of urine and in 3 days her condition approximated that present before removal from the chamber. (see chart showing changes following her withdrawal from the chamber.)

In this case of congestive cardiac failure the presence of active rheumatic infection and end-stage valvular pathology interfered with ultimate recovery, but it is cited because of the clarity with which it was revealed that life was sustained by the inhalation of an atmosphere containing 45% oxygen.

In a large series of cases by Richards and

Barach, (to be published), evidence is presented which indicates that cases of congestive heart failure due to degenerative forms of heart disease generally respond favorably to the inhalation of oxygen whereas those due to rheumatic infection usually show only slight and temporary improvement.

A similar instance is reported in the present report in a patient who had acute coronary thrombosis. Removal from an atmosphere containing 45% oxygen on the fourth day of oxygen treatment was followed by the symptoms of collapse which were promptly relieved by renewal of oxygen treatment. At the end of 7 days he was able to dispense with oxygen and was ultimately discharged from the hospital.

Summary: In this paper cases of acute and chronic oxygen-want are reviewed in pneumonia, congestive cardiac failure, coronary thrombosis and fibrosis of the lung. The use of effective oxygen therapy resulted in most instances in a relief of dyspnea, slowing of the pulse rate, diminution or disappearance of cyanosis and a general improvement in strength and well-being.

In some of the patients, removal from the oxygen-enriched atmosphere before improvement had been established resulted in symptoms of cardio-respiratory distress of varying severity. Replacement of oxygen therapy generally resulted in a relief of these symptoms and a return of the patient to his former condition. The evidence presented indicates that the inhalation of atmosphere containing 40 to 60% oxygen may sustain life over short or long periods, from three days to six months. When a subsidence of infection takes place in pulmonary cases or recuperative processes develop in the cardiac cases, the patients recover and may then be able to dispense with oxygen treatment.

Discussion

Dr. L. D. Norris, Fairmont: If air and water were suddenly eliminated, in a few seconds every living thing would be dead. The heart requires more oxygen than any organ of the body, so it strikes me that it is especially beneficial in abnormal cardiac conditions.

We have had a tent for about a year at Fairmont. Some cases in which we used the tent died and some got well.

The first case is one of a coal operator at Fairmont. The patient gave a history of having always been healthy except that as a young man he had a good many attacks of bronchial asthma. Seven years ago he developed a case of coronary embolus. One year ago he made a trip to New York and contracted a cold. He came back to Fairmont and developed a bad case of cardiac decompensation. Davis and Waddell sent in a great hurry for the oxygen tent. They hardly expected him to live until it came as he was very cyanotic and dyspnoeic. He was put under the tent and experienced immediate relief. He was kept in the tent for about eight days. After the second day he developed an acute auricular fibrillation. We increased the oxygen from 6 to 8, and administered digitalis after which he got better. On the sixth day we took the tent off for two hours, and on the next day for a few more. On the eighth day we stopped the oxygen entirely. With the cardiac background we feel that the tent saved his life.

The next case was a child six and one-half years old. Patient had developed a double lobar pneumonia with involvement of both bases. Temperature was 104.6, respiration 68 and pulse 170. Howard sent over for the oxygen tent. There was some cyanosis. The patient was put under the tent and four hours later the respiration had dropped from 68 to 38, pulse came down from 170 to 140, and the patient was very much relieved under the tent. On the second day we tried to take the child out of the tent but the pulse and respiration immediately went up. We again put him under the tent and kept him there for about two weeks. He had an empyema on the right side and passed the crisis on the ninth day. A rib resection was done and drainage instituted after which he recovered.

One important thing about the oxygen therapy apparatus is to have it well inspected from time to time. The tent was being used on a case in Wheeling and there was something apparently wrong, as the patient was perspiring and could not get his breath. We found that when putting ice in the cooling chamber, a piece of paper had gotten in with it which had stopped up the vent and the chamber was half full of water. This was cleaned out and there was no more trouble experienced. I repeat that inspection is very important and would suggest that someone at the head of the anesthesia

department be appointed to look after these things. They are accustomed to the use of gauges, etc., and could take proper care of the apparatus.

I am glad to hear that Dr. Barach does not use soda lime. I went over some A. M. A. Journals and found that two New York men had written a paper on that very thing, "The Use of Soda Lime in Oxygen Therapy," running at 6 meters per minute with ordinary oxygen given. The concentration did not reach as much as 30%, with the carbon dioxide content below 1%, but by using the same amount and by wrapping the curtain tight around the patient there was a rise to 50% with 3.7% carbon dioxide which did the patient no harm. However, we do not want the carbon dioxide to rise that high. Some cases have died which fact has made doctors skeptical as to whether the oxygen tent is a good thing or not. The doctors in New York suggested that the oxygen be run a little faster, 8 to 10 meters per minute.

Outside of the above cases I have used oxygen for other things, especially in high spinal anesthesia, where respiration is involved. Oxygen will also relieve nausea a good bit and in a great many cases has stopped it. Dr. John Deaver of Philadelphia, uses it in practically all cases. Oxygen is also good for the relief of hiccoughs. So are the barbituric acid derivatives.

Dr. P. A. Tuckwiller, Charleston: I think in the last decade oxygen has definitely established itself as a valuable procedure both in the treatment of medical and post-operative surgical cases. Dr. Barach is to be praised for his careful clinical investigation and for the difficulties which he has certainly been instrumental in overcoming in the progress that has been made recently.

Some of the commonest mistakes made in the use of oxygen are: (1) Postponement of its use until a prolonged anoxemia has done irreparable damage to the neural cells of the vital centers. (2) Too much reliance on the nasal catheter, (as so well brought out today by Dr. Barach). (3) Improper control of the concentration of oxygen. If there were some way to raise the concentration to fifty or sixty the patient would get along better. I think another mistake is the fact that sometimes we do not mix enough carbon dioxide with it. In the last few years this has been a most interesting addition to oxygen therapy, the use of carbon dioxide, especially in cases of pneumonia. Y. Henderson points out that "no one has yet reported the cure of an experimentally induced pneumonia by means of a vaccine, a serum or an antitoxin. On the other hand, experimental pneumococcic pneumonia has been cured with carbon dioxide." The value of carbon dioxide may be due to several factors: (1) When morphine is used, to make a pneumonia patient comfortable and quiet, respirations are depressed; the threshold of the respiratory center for carbon dioxide is raised. The stimulus to respiration by additional carbon dioxide intake would tend to counteract too much respiratory depression from morphine. (2) Increase of alveolar carbon dioxide may increase the bactericidal action of carbonic acid upon the pneumococcus and promote the solution of the pneumonic exudate. (3) Occasionally one sees a very toxic pneumonia patient, atypic insofar as breathing is concerned, in which the respiration is very slow. In my opinion a mixture of oxygen and carbon dioxide is certainly better for this type of patient as it tends to increase respiration a little.

I should like very much for Dr. Barach to express his opinion of the value of carbon dioxide.

Dr. B. S. Preston, Charleston: It might not be out of place to relate a recent case of pneumonia in which I have been using oxygen, and which I feel was very definitely benefited.

A gentleman 38 years old was taken with what seemed to be lobar pneumonia on May 1st, with involvement of both right and left lower lobes. On the second day he became cyanotic and ran a definitely high temperature. We were able to secure an oxygen tent with proper calibrator, and it was started at the end of the third day. Where oxygen seems to be definitely indicated the earlier it is used, the better, and I do not think we should wait for the extreme symptoms to set in that we may expect later in the disease. In this case the individual was not getting the results expected but when we checked the matter we found that he was only getting 32% concentration which of course was not greatly above normal. We started then on plus 40 which was all the concentration we could get through the calibrator. He then showed great relief. His temperature dropped about one degree or more and in every way he was much more comfortable. On the fourth day he was found to have an involvement of the right apex, making three lobes involved. The progress of this case on through for the time the oxygen was used (four days), was so unexpected that not only did he get relief but it had a direct effect on the length and

course of the trouble. We had but little difficulty in taking the oxygen away. We did not attempt this, by the way, until his temperature became normal. Then he would call for it when he would feel the need of it. Today he is much better, is up in his room and on the way to recovery.

Dr. R. J. Snider, Wheeling: Dr. William Middleton recently stated that the Wisconsin General Hospital was able to get concentration between 50 and 60% by means of the nasal catheter when giving 6 to 7 meters per minute. According to him, results there are better than those we get with our tent. Our nurses encounter some difficulty with the tent and lose oxygen. I wish Dr. Barach would comment on this.

Dr. Barach (closing the discussion): My impression is that the nasal catheter has to be put past the posterior pharynx and into the larynx. As long as it is kept in the pharynx the air gets blown out during the period of expiration. If we put it deep down into the larynx we can get a high concentration. I have never used the catheter except in the posterior nasal pharynx, though I note a report has been made that a higher concentration can be had by putting it down into the larynx itself. I do not know about this. It would have to be done very carefully.

I do not believe in the use of carbon dioxide in pneumonia. It does not seem that it has any physiological indication. Most patients' breathing is fast enough as it is.

I wish to make the point that the oxygen should be tested in the tent. Very often 40% may not be advantageous. Many need 50%. Concerning the loss of oxygen, the sheet should be draped very carefully around the tent and I would not worry about the elevation of the carbon dioxide. If it does get to 3%, when the nurse comes along, she will open the tent and look in and the carbon dioxide will go out.

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SOFT TISSUE INJURIES FREQUENTLY ASSOCIATED WITH FRACTURES OF THE LONG BONES*

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IT is with some hesitancy that I bring before the attention of the members of this society a subject which has often been discussed before you. But, on the other hand, no apologies are offered for discussing with such a group, a subject that is so frequently encountered by the majority of the practitioners in the present industrial age. The progressive industrial development of the world has not been achieved without an equal and associated increase in the number of casualties resulting from such progress. It has been the duty of the medical profession to keep pace with this marked industrial advance and attempt, not only to heal the wounds, but also to rehabilitate the individual so that he might again be able to keep his place as a wage earner.

During the World War the medical profession was faced with the tremendous problem of caring for and healing many more injured than it had ever encountered before in industrial practice. It was also faced with the still greater problem of rehabilitation of

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those individuals either for return to warfare or to civil life. Many of the results obtained by the usual methods of treatment were then found satisfactory as far as healing of the fractures or wounds were concerned, but the function of the injured part was extremely poor or nil. The importance of associated soft tissue injuries and the maintenance of function of the soft tissues while receiving treatment for a fracture was thus enforced on the attending surgeons and certain fundamental principles for care of the soft tissues were derived from observation. These same principles are adaptable to our present industrial injuries and must be observed in order to obtain good functional results.

Accompanying every trauma severe enough to result in fracture of a bone of the body, there is a certain amount of injury to the surrounding or closely associated soft tissue structures. This injury may be slight, only the tearing or rupturing of the minute blood vessels of the bone or periosteum; or it may be a severe traumatism of all the skin, muscles, nerves and blood vessels surrounding the bone. The repair of this injury by the body and the functional result obtained of the parts injured depends upon:

1. The extent of the injury, the loss of tissue.
2. The presence, or absence, of infection following.
3. The skill of the surgeon.
4. Prevention of adhesions and atrophy of all parts by early restoration of function.

One frequently encounters cases of severe trauma to the extremities with perfect reduction of the fractures, in which the function of the part is practically nil, due to neglect of soft tissue injury. It is undoubtedly true that the emphasis placed on the fracture *per se*, by insurance companies, state compensation commissions, and the laity as revealed by the röentgenogram has lead to the fallacy that perfect reduction of a fracture gives perfect functional result of the part injured. This is especially true in our state compensation department where the amount of compensation received by the patient is too frequently determined by x-ray evidence of injury to the bony skeleton, and not to the extent of loss of function to the individual. The fee of the attending physician is likewise determined on the same basis, rather than the skill and work required to achieve a good functional result.

Injury to muscles and tendons is probably the most frequent associated complication of fracture of the long bones. Atrophy of the muscles, due to disuse, may not be an associated injury but it is surely a complication most frequently encountered. It not only retards normal function, but also is detrimental to the circulation of the parts, and therefore detrimental to healing. It should be prevented by the use of massage, the walking cast, walking caliper and other supports that allow early contraction of the muscles, and use of the parts affected. Lacerations of muscle tissue, either complete or incomplete, as a complication of a fracture, should be repaired as soon as feasible, not only to maintain the full strength of the muscle but also to prevent the formation of adhesions and scar between the muscle and surrounding structures. Such scar tissue prevents the full force of the muscle being exerted and resultant limitation of motion of the neighboring joints. One only needs mention severed tendons, for it is an accepted fact that they should be repaired immediately, or as soon as possible following the injury. However, the tendons should be sutured so as not to leave the ends exposed to attach to surrounding tissue in healing. The tendon sheath should be as carefully repaired as the tendon. Here again early function is not only desired, but is a necessity to prevent marked loss of function.

One of the most fundamental principles in the treatment of any disease of the extremities is the prevention of contractures by the maintenance of the optimum position for function at all times during such treatment. Thus the wrist and hand should be maintained, where possible, in the position of grasp; the elbow should be flexed at right angles; the knee in

15 degrees flexion and the foot in 90 degrees dorso-flexion. Such positions not only allow early return to function without tenotomies for correction of deformities, but also allow early use and exercise for aid in the restoration of function. It is conceded that these principles cannot be carried out in all fractures but can be observed in the majority of cases.

Whereas extensive injury to muscles and tendons is usually associated with compound fractures, severe injury may be present to the nerve trunks with the simplest type of fracture. The physician who does not routinely test every case of fracture for an accompanying nerve injury will eventually have an unwelcome surprise awaiting him on removal of the supportive apparatus. One case is to be cited:

A boy, 18 years old, playing in a high school football game made a hard tackle, striking the runner's thigh with his left shoulder. He suffered severe pain in his shoulder and was removed to the hospital. The x-ray revealed a slight acromio-clavicular separation. His shoulder and arm were strapped with adhesive for six weeks, although the boy continually complained of pain in his neck and numbness of his arm. Much to the physician's embarrassment, on removal of the strapping, the arm revealed marked sensory and motor paralysis of the extremity. Later investigation by open exploration of the cervical plexus showed the upper two cords to have been avulsed from the spinal cord at the time of injury.

Fortunately, this was one case where the time element was not important, but any of the nerve trunks may be injured in association with compound fractures in their vicinity. Such injury can easily be discovered by early examination. If such an injury is present the nerve should be exposed at the time of debridement and, if necessary, repaired. The injury may vary from complete severance, in which nerve suture is necessary, to pressure from the edema of surrounding tissues or of a bone fragment.

There are certain nerve trunks that are frequently injured in simple fractures, such as the peroneal nerve, as it passes over the head of the fibula, the dorsal interosseus in its relation to the head of the radius, the median nerve in the cubodial space and the musculo-spiral in its close relationship to the humerus. As cited before, the injury may vary from a complete severance to a simple acute pressure neuritis. The symptoms in either case will be paralysis of the muscles innervated and loss of sensation of the area supplied.

Careful judgment is necessary in determining whether to expose the nerve trunk in these cases, but the conservative treatment is usually advisable. However, it is necessary to prevent deformities in these cases by supporting the paralyzed muscles in a position of rest and maintaining the joints in optimum position of function, until the nerve supply is reestablished. Many authors believe that if no evidence of return of function is present at the end of the third month, that the nerve trunk should be exposed. However, no hard and fast rule can be laid down in such a condition, as the location and type of injury, evidence of return, and the nerve involved must all be considered in making the decision. A much safer rule is exposure after six months without evidence of return.

Such rules, of course, do not apply to acute traumatic neuritis due to a demonstrable bony pressure, as seen in displacement of bony fragments on the nerve trunks as in comminuted fracture of the middle one-third of the humerus. Nor does it apply to dislocations of the shoulder, hip and elbow with their associated respective nerve lesions of the brachial plexus, sciatic and ulnar nerves. Neither does it apply to the too frequently undiagnosed dislocation of the carpal semilunar and the median nerve neuritis that practically always accompanies such lesions. The bony pathology must be corrected first in all cases, as the traumatic neuritis is only an accompanying symptom of the underlying pathology.

Latent traumatic, or pressure neuritis, may be developed months after the primary injury, due to the gradual scar tissue contracture, the encrouchment of callous on the nerve trunk, or due to stretching of the nerve from a gradual developing deformity. The latter is well illustrated by the ulnar nerve paralysis developing years after a supra condylar fracture of the humerus healed with gun stock deformity and stretching of the ulnar nerve over the medial condyle of the humerus. Such cases usually respond very well to neurolysis and transplant of the nerve, unless the condition has been present for too long.

Frequent complications of traumatic neuritis in association with fractures are the very stiff joints, distal to the injury, that accompany such injuries. With constant physiotherapy the range of motion will gradually decrease and be associated with pain. A typical example is the very stiff painful hand too frequently seen following a Colles fracture. The skin is smooth and shiny, the nails show trophic changes and the circulation is poor. It has been explained by Dr. W. E. Gallie as a traumatic neuritis of the articular branch of the median nerve to the wrist joint. Eventually, after months of worry and discomfort, both to the patient and physician, the condition rectifies itself. This condition is undoubtedly accompanied by a reflex vasomotor phenomenon and illustrates how closely allied are the sheletal, neural and vascular systems and demonstrates that one lesion cannot be treated with total disregard of the others.

The trauma of the blood vessels is, of course, of major importance in consideration of injuries associated with fractures. Unfortunately arterial and venous surgical repair is not successfully enough developed at the present day to eliminate the necessity for amputation in the severe crushing and mutilating injuries so frequently seen in the local industrial practice. However, there are many other primary and secondary interferences with blood supply that can be alleviated by close observation and proper treatment.

Ligation of many of the main arterial vessels when injured has been successfully demonstrated and reported too frequently to receive more than mention in this paper, except as a routine procedure. The collateral circulation established after the ligation of the brachial artery and its terminal branches, as well as the femoral throughout its course, is of course sufficient for continuation of function of the affected member after the ligation has been accomplished. Interference with the venous return as a sequel of fractures of the bones of the upper and lower extremities is probably responsible for more disability than arterial injury. We have all encountered the enormously edematous leg with its accompanying disability due to injury to the deep veins of the lower extremity. I am not referring to the edema that appears temporarily following removal of a cast, which can be controlled so successfully by the zinc gelatin paste stocking, reintroduced by Bohler, but to the continued markedly edematous extremity with its accompanying ulcers and pain which is a nightmare to the attending surgeon.

Acute interference with venous return may result from pressure from without due to tight splints, bandages, or casts, or from within due to severe hemorrhage into the surrounding tissues closely bound by unyielding fascia. There is an accompanying cold, swollen, painful extremity and unless the condition is relieved immediately unrepairable damage will result. The condition, formerly thought to be due to interference of the arterial supply, but now definitely believed to be due to interference of the venous return, is called æschemia. It is most frequently seen in fractures about the elbow and the knee, although it may accompany severe trauma elsewhere in the extremity. Fractures of the elbow and the knee are especially prone to produce æschemia due to the type and frequency of fractures occurring in these locations, the proximity of the vessels and nerves to the bones and the closely associated cuboidal and popliteral fascia with small

amount of accompanying soft tissue structures to absorb the hemorrhage.

If the obstruction is not relieved by removal of dressings, then immediate section of the fascia must be done. He who hesitates and postpones such procedure is lost. The result of such æschemia is unfortunately too frequently seen to need description, but deserves mention for emphasis of prevention. The muscles are replaced by scar tissue which contracts with resulting flexion deformity. The nerves are caught in the scar tissue and cause an accompanying paralysis and either a complete loss of sensation or a marked hyperesthesia. The arteries are compressed by the scar interfering with the arterial supply.

If such æschemia has developed, deformity must be prevented by maintaining the part in an optimum position for function. Later, after careful correction of the neurological and vascular pathology, the muscles may be returned to their normal function by physiotherapy and training. However, as aptly brought out by Steindler, the range of contraction of such muscles will always be much be assumed should always be one that uses the range of motion present to the greatest functional advantage.

Discussion of æschemia cannot be completed without reference to æschemia of bone fragments following fractures with resultant non-union. Phemister in his recent work on sterile neurosis and Gridlestone of Oxford, England, have definitely proved that æschemia due to interference of arterial supply is responsible for the frequent non-unions of the neck of the femur, carpal scaphoid, ulna, femur, humerus, etc. Gradual revascularization of the parts with accompanying union does not occur until after months of complete immobilization, and after the patience of both the surgeon and patient have been sorely tried. Usually, perhaps unwillingly, the physician has been coerced into surgical interference and bone grafting, which in some cases only prolongs the convalescence.

Ligaments both within and about the joints, frequently are the objects of severe injury either accompanying intra-articular fractures or in close proximity to the joint. In most incidents such injury is of little consequence as the ligamentous structures are well healed long before the accompanying fracture. However, in some cases a functional extremity is not obtained even though the fracture is solidly healed, due to a markedly relaxed and unstable joint resulting from ruptured and torn ligaments that have not healed. Such ligamentous injuries should be recognized and treated at the time of treatment of the fracture.. They will practically all heal if the joint is placed in such a position as to approximate the torn structures. If healing does not occur they should be repaired later.

The importance of the internal and external lateral ligaments of the knee joint with their closely allied semi-lunar cartilages cannot be too strongly stressed in their relation to a stable knee joint. They are very easily and frequently injured in fractures about the knee due to the mechanics of the joint.

The frequent injury to the supraspinatus tendon, at its insertion into the capsule of the shoulder joint, was first pointed out by Codman in 1912 and has recently been again brought to our attention by Wilson. The importance of this tendon as a suspensory ligament and muscle of the head of the humerus, and due to the fact that it is practically always torn in dislocation of the shoulder, would lead us to the conclusion that all dislocations of the shoulder should be treated in abduction, in order to obtain a solid healing of this ligamentous tendon in its proper position. We feel that if this is done, recurrent dislocation of the shonlder will rarely occur.

One other single ligament will be mentioned, that is, the orbicularis ligament of the elbow joint which maintains the head of the radius in its relation to the capitellum. Its rutpure allows the head of the radius to be dislocated upward and anteriorly by the pull of the biceps. This occurs in those cases of fracture of the ulna in the proximal third with dislocation of the head of the ra-

dius. It is usually necessary to perform an open repair of this ligament before a correction of this deformity can be maintained.

Summary: An attempt has been made to summarize the importance of injuries to the nerves, muscles, blood vessels and ligaments in association of fractures and dislocations of the long bones. To stress the importance of such injuries in relation to the functional results obtained from such fractures and dislocations; to emphasize that normal, or nearly normal function is the ideal result to be obtained from such injuries and in order to obtain such results close attention must be paid to trauma of the soft parts.

Discussion

Dr. C. W. Stallard, Montgomery: While listening to Dr. Scott's essay on soft tissue trauma accompanying injuries of the long bones, I recalled Dr. Cotton's äxiom, that, "It isn't usually the fracture that gives us trouble but the injury to the soft tissues and adjacent joints." This trouble is usually due to prolonged immobilization, lack of early active exercise, early passive and active motion, massages, heliotherapy, etc. Not very long ago the accepted treatment of fractures was immobilization in some type of splint for a long period of time, forgetting about this fracture until it was time to remove the splint. As a result of this treatment there was marked limitation of motion of the joints and contraction of the soft tissues, resulting in a temporary or permanent disability, either partial or total.

These men knew that a fracture would usually heal sufficiently to allow some sort of function regardless of the position obtained but it took the World War to prove to the medical profession that fractures of the long bones with their associated soft tissue injuries are not only disabling and crippling but at times actually cause death, the death usually being due to hemorrhage and shock. Thus it is only since the World War that traumatic surgery has begun to take its place high in the field of surgery where it rightfully belongs and has belonged for a number of years.

We also know that any type of reduction will usually result in union but in the present industrial age and with the aëroplane age just around the corner, we have also come to learn from sad experience that only a perfect or as nearly perfect anatomical reposition of the underlying fracture or fractures is not only essential but is a prime requisite in order that an extra burden might not be thrown upon the recovery of the soft tissue trauma associated with the fracture. This added burden is usually the result of prolonged immobilization which has been rendered necessary by improper or incomplete reduction of the fragments.

It is our duty to see that the injured individual is returned to his normal wage earning capacity in the shortest possible period of time. This can be accomplished only by constant and diligent treatment controlled by repeated x-ray examinations of the involved structures. If by more perfect anatomical reposition of the fragments we are able to return the patient to his normal wage-earning capacity in from two to six months, whereas if only imperfect anatomical reposition has been obtained it will be necessary for him to remain away from his duties from six to twelve months, it is evident that we have a definite responsibility in the matter. Then you begin to see the financial strain thrown upon the individual.

As a result of our failure to insist upon the best possible position we also have the employer's side to consider. By prolonging the patient's period of temporary total disability we are throwing an added burden upon the corporation as well as upon the State Compensation Commission.

Where more nearly perfect anatomical reposition has been obtained we are able, in the shortest period of time, to begin gentle passive motion, early massages and electric bakings which aid in the return of the normal function of the soft tissues by preventing contraction of the soft tissues and ankylosis of the adjacent joints.

We are getting away from prolonged immobilization and circular plaster of paris casts by using Thomas splints, Balkan frames, Buck's extension and Steinman's pins as traction. Using this apparatus enables us to begin early massages and gentle motion of the extremity.

Dr. Scott mentioned traumatic neuritis, traumatic myositis and traumatic synovitis as a result of malposition of the fragments. He also mentioned that we were unable to determine these conditions until after all immobilization had been removed, weight-bearing established and use allowed. Would it not be wise, in selected cases, to insist upon obtaining perfect anatomical reposition even if an open operation has to be performed? This might

be criticized by some surgeons in that we convert a simple fracture into a compound one, thus increasing our chance of infection, osteomyelitis and non-union but if this is done under the proper aseptic precautions the added risk of infection in an open reduction is no greater than a clean case of appendicitis.

In closing, I want to emphasize especially the importance of proper anatomical reposition of the fragments, of immediate and adequate care of the soft tissue injuries and of short periods of immobilization so that early passive and active motion, massages and electric bakings may be instituted.

Dr. A. F. Lawson, Weston: The thorough and scientific manner in which Dr. Scott has handled his subject is not a surprise to those of us who are interested in fractures. It is impossible for any one to learn too much about the treatment of soft tissue injuries.

Speaking of the presence or absence of infection following a wound makes many of us think of war hospitals and the wonderful results obtained by them in treating infected wounds, and I am sure we realize that Carrell Dakin treatment was responsible for the rapid cleansing of a majority of these wounds.

Surgeons and hospitals, however, have been slow to take up the use of solutions made according to the Dakin technique, because to make them requires twelve to eighteen hours and considerable labor, and they have to be titrated and tested with special apparatus each day before using, such solution being extremely unstable and irritating, unless carefully neutralized. The preparation of such solution is difficult and the results unsatisfactory.

While in Pittsburgh recently, I was talking to Dr. William O. Sherman, who told me about an antiseptic he is using successfully to make his Dakin's solution; it is hyclorite:—to make Dakin's solution in one minute, dilute one part of hyclorite with seven parts of water; this makes a solution of equivalent sodium hypochlorite content of very mild alkalinity. Hyclorite has been accepted by the council on Pharmacy and Chemistry of the American Medical Association and is manufactured by General Laboratories, Inc., of Madison, Wisconsin. In irrigations of wounds the Carrell Method of application should be followed as closely as possible. Through and through irrigation should be avoided because it is most important to keep the cavity filled with as large a volume of solution as possible. Installation tubes should be carefully introduced so that there are no dead pockets which are not bathed by the fluid. The skin around the wound may, if necessary, be kept covered with yellow petrolatum to avoid any possibility of skin irritation. Because of the protective flow of serum which occurs when the solution reaches the living tissue cells, hyclorite can be used with safety on fresh wounds of soft tissue in the prescribed dilutions, but should not be used on fresh wounds in cartilage or similar tissues, as these tissues do not respond with a protective flow of serum. Where the cartilage or soft tissue is necrosed, the use of the hypochlorite solution is indicated because the uninjured tissue is protected by the layer of necrosed tissue. In the case of cartilage, discontinue hyclorite application as soon as the necrosis is cleaned up.

Since my conversation with Dr. Sherman, I have used the solution in two cases; one a child aged 12, who still has his Carrell tubes in his leg; the other, a male aged 46; both patients have been permitted to return to their homes. By the use of Dakin solution, I feel that we can greatly shorten the stay in the hospital for our patients with compound fractures.

Dr. Scott has mentioned the repairing of nerves injured when found associated with compound fractures at the time of debridement. The question is often asked, "What is a good debridement?" I would like to quote here the answers to a questionnaire prepared by Brigadier General J. M. T. Finney and Colonel G. W. Crile, sent by Research Committee to base hospital staffs.

Q. What is a good debridement?

Answers Concensus:—(a) Sparing removal of skin about wound margin.

(b) Any necessary enlargement of wound and proper retraction.

(c) Removal by sharp dissection, of all contaminated, contused, devitalized tissue lining wall of tract of missile, with avoidance of injury of any important blood vessels and nerves.

(d) Removal of foreign bodies including pieces of clothing.

(e) Scrupulous hemostasis and drying ether lavage (optional).

(f) Fixation of remaining organism by tincture of iodine (optional, but believed by some to be of value).

(g) Especial care with regard to muscle tissue removed with contraction, bleeding and normal

muscle color, the guides in reaching normal muscle tissue.

(h) Guarded removal of unattached bone fragments.

(i) Direct observation, by good head light, of wound tract.

Q. What errors in debridement have you noted?

Answers Concensus:—(a) Inadequate exposure of wound tract.

(b) Incomplete removal of damaged and contaminated tissue.

(c) Unnecessary transverse section of muscle.

(d) Undue sacrifice of skin (important).

(e) Too firm packing with gauze and through and through drainage.

(f) Unnecessary damage to important vessels and nerves.

(g) Short cuts to foreign bodies without following wound tract.

These questions were asked and answered in 1918, but I think the most of us feel they still hold good. I am emphasizing debridement because delay or done hurriedly may lead to infection.

Today with so many automobiles on our public highways, most every physician, no matter where he is located, is often called upon to treat an extremely severe compound fracture of the long bones.

Dr. E. B. Henson, Charleston: I agree with Dr. Scott on conservative treatment of nerve injuries. Also he made a very good point in insisting that you should always look for nerve injuries in every fracture.

It has been brought to my attention twice in the last two years in cases of supracondylar fractures of the elbows. I saw a child come in with his index fingers sticking up; that meant a nerve injury. He responded after reduction of the fracture, and conservative treatment.

Just recently I had a similar fracture, in which there was no apparent nerve injury at the time, Four weeks after I had occasion to see it develop; I cautioned the mother about this very thing, but it happened in this case, as it happens in many cases, and it makes you feel at fault.

In some of these cases, the hand is twisted, and thrown up above the radial or muscular nerve. I have seen two such cases, and I pass that on as a caution.

I think the old ladies should be told to do their knitting, and help wash dishes, as well as they can. But the doctor dare not say too much; for it takes time. In one particular case I should have been kicked for trying to make an old lady use her wrist more than she wanted to.

But I really believe conservative treatment is the best way to deal with them in the long run.

Dr. Scott (closing the discussion): I cannot entirely agree with Dr. Stallard as to the importance of absolute anatomical reposition. I have seen too many good functional results. Perfect anatomical reposition is not absolutely necessary. Personally, I'd rather treat a fracture much longer conservatively, and open up as a last resort. I am a great believer in the least possible damage to circulation and bone.

Dr. Lawson, I have treated many compound fractures, where they were left wide open, and no trace of infection was shown. They were dressed every six to eight weeks, unless indications demanded dressing sooner. They must be treated the same as osteomyelitis, if such evidence is present.

THE RESPONSIBILITY OF LICENSURE

With the constant changes in medical education and methods of training physicians, the responsibility of determining fitness to practice is assuming increasing importance. The lack of uniformity in medical laws and the different factors to be considered in the interstate endorsement of licenses present further difficult problems.

The proper control and supervision of licensure calls for the best talent in the medical profession, and this should always govern the selection of new members on state examining boards.

In the membership of the general Medical Council of Great Britain there is represented the best in British medicine, and the examiners on the different examining boards include only the leading physicians and surgeons of the country. It is regarded as an honor and distinction to be chosen as examiner on these boards.

Medical licensure must keep pace with the evolution and advancement of medical training, and it is timely to recognize that the proper administration of the licensing function entails a responsibility of the highest order.—*Federation Bulletin.*

CARDIAC DISEASE*

(A Consideration of Some of the Factors Involved in Diagnosis and Classification.)

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THE selection of the material to be included in this paper, even though it is largely restricted to history taking, physical examination, and classification, has been far from easy for the very obvious reason that there is available such a wealth of pertinent data that might be included with profit; all interesting, enticing and important.

New patients who come to my office frequently ask me if I am a "heart specialist." I confess to a deep interest in the problems of cardiology and I am responsible for the management of all patients with cardiac disease who come to our hospital and clinic but I do not claim to be a "heart specialist" nor do I know just what a "heart specialist" is. Perhaps those of us with a deep and abiding interest in the subject who enjoy the study and treatment of patients with cardiac disease might be so designated. Nevertheless, it has been, and is, my attitude that my patient with cardiac disease is a sick individual who, perhaps along with non-related conditions, has a cardiac disorder with its associated physical and *mental* phenomena. It is from this broader viewpoint that the ensuing material has been prepared.

History taking is often treated lightly and is sometimes delegated to a secretary. I consider that the taking of a patient's history is so important that if I am compelled to ask an assistant or associate to help me out during a rush period I prefer to take the history myself and accept his findings on the physical examination rather than the reverse, which appears to be the usual procedure.

I believe that we frequently fail to arrive at a true understanding of the pathological abnormalities present in a given patient through our failure to arrive first at an estimate of the type of person we are dealing with. I believe the first step in taking the history of our patient should be a conversation directed toward the objective of achieving a satisfactory understanding of the personality—type of our patient. I realize that during rush periods when we have a large number of patients to see in a relatively short period of time there is the temptation to omit this and to hurry on to our search for data leading us to the final diagnosis but I believe any time that may be required to first secure this personality estimate is well spent and will save time later. Of course the entire period spent with the patient will further verify or alter our initial impression as to the type of person with whom we are dealing but this first conscious effort to make such an appraisal will almost invariably prove helpful.

I believe another source of failure is the fact that we sometimes permit ourselves to hurry the patient while he is trying to tell us the story or his or her illness. I believe we can always allow him sufficient time to tell his story in his own words. Of course it is permissible, even desirable, to lead him back to the main story when he attempts to go too far afield but in the main I believe it is advisable to permit him to tell his story in his own way. Too much effort on our part to guide him only results in the patient becoming confused and will frequently cause him to forget important facts. *We feel perfectly at ease* while attempting to secure the history but I believe it is well for us to remember that *the patient is likely to be under a certain amount of nervous tension.* After he has told us what he considers the pertinent facts about his case we can then question him and secure further details on such facts and

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also seek other information which we may consider it important to know about yet which the patient has not connected with his condition.

In obtaining the history on the circulatory system it is highly important to seek for a history of tonsillitis, rheumatic fever, or chorea, that is, the rheumatic triad. The subsequent finding of a mitral murmur is of incomparably more significance when such a history has been elicited than when it has not. It is also important to inquire both by name and by symptoms for a history of syphilis. Such a history, if obtained, will add greatly to our understanding of an aortic regurgitant murmur or evidence of an aneurysm should these be found during the examination. I confess that in my first years of practice I was sometimes reluctant to ask the so-called better class patient for this information relative to a luetic infection, but when it is recalled that some six to eight per cent of patients admitted to hospitals in this section where the Wassermann is run routinely yield positive reactions it will readily be admitted that such reticence on our part amounts almost, if not quite, to a neglect of duty. It is also advisable to inquire as to a history of pneumonia, sepsis, diphtheria, scarlet fever, et cetera. A history of the various places where the patient has lived is also important, as will be shown later.

Bearing in mind the symptoms produced by the various diseased conditions of the circulatory organs we will inquire relative to the presence of dyspnea, fatigue, cough, expectoration, position during sleep, thoracic oppression, pain in the chest or epigastrium and its radiation, the presence of vertigo, periods of syncope, throbbing of the vessels, palpitation, and consciousness of rapid, forcible or tumultous heart action. It is also my custom to seek very definite information as to the patient's habits concerning tobacco and alcohol. I consider that this data should be secured for its own value and I find that the patient's answers to these questions often help us in further evaluating his personality type.

Considering the fact there is probably an hereditary factor in arteriosclerosis as well as the possibility, even probability, that heredity may play some rôle in other circulatory disorders I consider that we have enough data to warrant careful questioning as to the patient's family history with reference to such conditions.

After the history has been obtained to our satisfaction we continue our diagnostic study by the physical examination which must, of course, receive the same careful attention that was given to the history. It is my custom to request male patients to remove all clothing with the exception of the lower portion of the underclothing. The nurse supervises the preparation of the female patient for examination and sees to it that she is properly draped but is, at the same time, not so completely covered as to conceal essential areas which would render examination unduly difficult.

After our patient has been properly prepared for examination we first devote our attention to a careful inspection, looking for dyspnea, orthopnea, pallor, cyanosis, jaundice, petechiae, distension, or pulsations of the superficial vessels, more particularly the vessels of the neck; edema, especially of the dependent portions of the body and the face; clubbing of the fingers; inequality of the pupils; normal or abnormal pulsations, especially of the precordium; bulging of the precordium; enlargement of the thyroid gland; tremor, fullness in the hepatic region and in the flanks; and evidence of wandering attention which may sometimes rest on a circulatory basis. I shall not attempt to discuss the significance of the phenomena mentioned since you are all quite as familiar with them as I.

Palpation usually yields useful information, either positive or negative. It will indicate the degree of edema present more satisfactorily than inspection. It affords information as to the warmth and texture of the skin; as to the presence or absence of palpable precordial thrills; as to the position of the cardiac apex; as to the size of the liver and the presence of ascites; and particularly

as to the condition of the peripheral vessels; as to whether or not the pulse is of small or full volume; as to whether its rise and fall is normal, slow or rapid; as to whether it is synchronous on the two sides; and as to whether it is regular or there is an arhythmia present, as well as considerable information as to the type of arhythmia. I shall not tire you with a further tabulation of data that can be thus obtained but the items mentioned above have been of very definite benefit to me in the study of patients with cardiac disease.

Data as to the size and shape of the heart may be obtained by percussing the superficial and deep cardiac dullness. Estimation of the retromanubrial dullness will also afford data as to the state of the great vessels at the base of the heart. Percussion is also useful in outlining the upper margin of the liver as well as ascertaining whether or not there is tenderness in the hepatic area. It will also help us to decide whether or not there is fluid in either the pleural or pericardial cavities.

Auscultation is employed to determine the character the normal heart sounds and to seek for the presence of abnormal heart sounds. It also serves as a means of learning whether the cardiac rhythm is regular or whether an arhythmia is present. It will often furnish the data required to classify the type of arhythmia found.

It is not my purpose to enter into a discussion of the mechanics involved in the production of the various heart sounds but it is believed desirable to mention briefly a few of the factors responsible for the production of the normal sounds. In a normal heart the examiner will hear two, sometimes three, distinct sounds at the mitral area. The first of these heart sounds is systolic in time and is synchronous with the ventricular systole. Its onset is sudden, it is rather long, fairly loud and low pitched. It also terminates rather abruptly. It is thought to be due to the muscular contraction of the ventricles, to the systolic tension of the atrio-ventricular valves and to the sudden distension of the aorta and the pulmonary artery. It is louder and longer (0.8 second) than the second sound (0.05 second) from which it is separated by a short but usually appreciable pause.

The second heart sound marks the onset of diastole and is short in duration and relatively high pitched. It is preceded by the short but perceptible pause noted previously and is followed by the long diastolic pause. It is believed to be largely due to the sudden increase in tension of the semilunar valves.

The third heart sound is not ordinarily heard in adults with any degree of regularity but it is heard not infrequently in children. It occurs about 0.1 of a second after the second heart sound and is therefore early diastolic in time. Dr. Thayer of Johns Hopkins Medical School, now deceased, taught that the third sound was due to the sudden tension of the mitral valves resulting from the sudden inrush of blood at the beginning of diastole. Parker believes that the third heart sound results from the contraction of the auricles.

We now know that the heart sounds are produced by the vibrations of the muscular and membranous structures and not by their fluid contents. Horizontal vibrations of these muscular and membranous structures are necessary for sound production. The first heart sound is therefore produced by the vibration of the heart walls and of the valves while the second is due to the sudden increase in tension and resulting vibrations of the aortic and pulmonary semilunar valves during closure.

I do not wish to prolong this paper by entering into a discussion of murmurs but since they are elicited in the physical examination I am more or less compelled to mention them. In recent years there has been a change of opinion as to the mechanics involved in the production of murmurs. When I took my first course in physical diagnosis we were taught that murmurs were produced as a result of the production of "eddy currents" resulting from organic or functional change in the heart structure. We now believe that they are due to rhythmic vibrations of the cardiac or arterial tissues and not

to vibrations of the blood stream. Since the time relations and other characteristics of the various types of murmurs are so familiar to this group I shall refrain from further reference to them.

In the course of our auscultation we will have listened to the heart sounds and have determined whether or not they are normal. We will have determined whether or not the rhythm is normal or abnormal, with a careful notation of any abnormality and we will have noted the presence of any murmur with a notation as to its location, time, intensity, and duration.

In addition to the general physical examination we will want a determination of the Wassermann reaction and electrocardiographic studies, possibly x-ray studies to determine the cardiac measurements with accuracy and blood counts either routinely or in selected cases, the latter being especially desirable when a functional heart condition is suspected with anemia regarded as the responsible factor.

After having obtained the history of our patient and after having obtained the general and specific data yielded on physical examination and the special examinations we are still confronted with the necessity of analyzing this data and of arriving at a satisfactory diagnosis. A diagnosis to be satisfactory must not only be corrected but it must be complete and shall include within itself or imply all the data that will permit proper classification of the case and the deduction of an appropriate plan of treatment.

It is not enough to have observed and accurately described the effects of anatomical abnormalities. To meet the requirements of a satisfactory diagnosis we must have a *symptomatic* or *clinical diagnosis,* plus the *pathological* or lesional diagnosis, plus the *physiological* or functional diagnosis plus the causal or *etiological* diagnosis. We are not always able to achieve this full requirement and must rest content with an approximation to the truth, in some instances we must, indeed, be content with even less.

Martinet quotes the following illustrative example as one where the full requirements are met: An adult patient has been having epileptiform episodes for several weeks. At the time of such an attack the pulse ranges from 30 to 40. We learn that the patient contracted syphilis a number of years before. Specific treatment arrested the epileptiform episodes. In this example we have the clinical component of a full diagnosis in the Stokes-Adams syndrome due to the physiopathological component, auriculo-ventricular dissociation, which is the result of a lesion of the bundle of His, (the pathological component) which, in turn, is syphilitic in origin, (the etiological or causal component).

The classification of cardiac disease has not proved to be particularly easy due to the fact that we have not always been able to meet the requirements of a full diagnosis. At the present time I believe it is most satisfactory first to analyze the available data and determine whether we are dealing with a *functional* or an *organic* cardiac condition. If the former we can often, if not usually, find the etiological factor and thus be in a position to outline treatment. If the data obtained suggests that we have an organic cardiac condition we shall have to study the facts at hand to classify the condition, not forgetting the patient's history.

We know that the vast majority of organic cardiac conditions in children and young adults are rheumatic in type. White and Jones (1928) report that in New England 93% of all cardiac patients under the age of twenty years had the rheumatic type of cardiac disease and 40% of all cases regardless of age came under this classification while at the Massachusetts General Hospital 54% of all cardiac patients were classified as of the rheumatic type. We also know that from 5% to 25% of heart lesions that are first diagnosed in middle life are luetic in origin. We recognize that a large proportion of cardiovascular conditions which are first diagnosed in the years past fifty are hypertensive and arterio-sclerotic in origin.

The part that climate plays in relation to the rheumatic type of heart disease is well

known. In the northern part of the United States the rheumatic infection and its permanent involvement of the heart are from five to ten times as great as in the extreme southern part while in the mid zone the incidence is between the extremes.

The incidence of cardiovascular syphilis varies from about 4% of cardiovascular cases in New England to about 25% in the southern part of the United States. The age at which the condition becomes manifest is usually 40 to 50 years although it may vary from birth to old age. Necropsy studies show that the incidence is about 4 to 5 times as great in the male as in the female.

The importance of hypertensive cardiac disease is evident when it is stated that in the United States the annual deaths from heart failure due to hypertension number about 70,000 and there are about the same number of deaths as a result of the other consequences of hypertension.

The following table, abstracted from White's book "Heart Disease" indicates the influence of location on the development of the various types of heart disease:

Type of heart disease (Percentage)	New England (1543 cases)	Virginia (300 cases)	Texas (915 cases)	Minnesota (330 cases)
Congenital	2½%	1%	1%	1%
Infections:				
"Rheumatic" type	54%	22%	7½%	28%
Acute bacterial endocarditis — rare	Rare	None	None	None
Subacute bacterial endocarditis	2½%	None Reported	1½%	9%
Cardiovascular syphilis	5%	11%	19½%	8%
Thyroid	4½%	3½%	1%	None Reported
Hypertensive	26½%	46%	27½%	12%
Angina pectoris	9½%	9%	2½%	36%
Coronary, exclusive of angina pectoris	26%	37%	13½%	
Angina and coronary				36%

Miscellaneous group: Only a few cases in each section except Minnesota with 5% pericarditis reported.

A classification of heart disease, based on etiological factors and conforming to the nomenclature of the American Heart Association is given below:

A—Etiological Diagnosis

1. Anemia
2. Arteriosclerosis
3. Bacterial infection (specify if possible)
4. Congenital maldevelopment
5. Emphysema, pulmonary
6. Hypertension
7. Other etiological factors
8. Psychoneurosis
9. Reflex action
10. Rheumatic fever
11. Syphilis
12. Thyroid disease
    (a) Adenoma of thyroid
    (b) Exophthalmic goitre
    (c) Myxedema.
13. Toxic agent (specify if possible)
14. Trauma
15. Unknown.

Perhaps the earliest orderly classification of organic cardiac lesions was that based on anatomical factors. There can be no reasonable doubt that this has served a useful purpose but it does not now meet our requirements for a satisfactory diagnosis and we have therefore sought further data. An anatomical classification that is useful and conforms to the nomenclature of the American Heart Association follows:

B—Anatomical Diagnosis

Aorta and Pulmonary Artery

1. Aneurysm of aorta (classify location)
2. Aortitis
    (a) Without dilatation
    (b) With dilatation
3. Arteriosclerosis of the aorta
    (a) Without dilatation
    (b) With dilatation
4. Arteriosclerosis of pulmonary artery
5. Arteritis of pulmonary artery
6. Congenital defect (specify location if possible)
7. Embolism of pulmonary artery
8. Injury (specify character of lesion)

9. Other diseases of aorta or pulmonary artery (specify lesion)

Coronary Arteries

10. Aneurysm of coronary artery
11. Arteriosclerosis of coronary arteries
12. Arteritis of coronary arteries
13. Embolism of coronary artery
14. Endarteritis of coronary arteries
15. Other disease of coronary artery (specify)
16. Periarteritis nodosa of coronary arteries
17. Thrombosis of coronary artery

Endocardium, Myocardium and Valves

18. Aneurysm of heart (specify location)
19. Atrophy of heart (specify valve)
20. Calcification of valve (specify valve)
21. Congenital defect (specify lesion if possible)
22. Degeneration of myocardium (specify type if possible)
23. Dilatation of heart (chambers involved may be specified)
24. Endocarditis—acute
25. Endocarditis—chronic
26. Endocarditis—subacute
27. Enlargement of the heart (chambers involved may be specified)
28. Fatty infiltration of heart
29. Fibrosis of endocardium
30. Fibrosis of myocardium.
31. Fibrosis of valve (specify valve lesion)
32. Hypertrophy of heart (chambers involved may be specified)
33. Infarction of myocardium
34. Injury of heart (specify character of lesion)
35. Myocarditis—acute
36. Myocarditis—chronic
37. Neoplasm of heart (specify type)
38. No lesion of heart
39. Other lesion of heart (specify lesion)
40. Rupture of heart (specify location)
41. Rupture of valve (specify valve)
42. Rupture of papillary muscle
43. Sclerosis of valve (specify valve lesion)
44. Thrombosis within heart (specify chamber affected)
45. Undiagnosed lesion of heart
46. Valvular disease, acute (specify valve lesion)
47. Valvular disease, chronic (specify valve lesion)
    (a) Aortic insufficiency
    (b) Aortic stenosis
    (c) Mitral insufficiency
    (d) Mitral stenosis
    (e) Pulmonic insufficiency
    (f) Pulmonic stenosis
    (g) Tricuspid insufficiency
    (h) Tricuspid stenosis.

Pericardium

48. Adherent pericardium
49. Calcification of pericardium
50. Congenital defect of the pericardium (specify lesion)
51. Haemopericardium
52. Hydropericardium
53. Injury to pericardium (specify character of lesion)
54. Neoplasm of pericardium
55. Pericarditis—acute
    (a) Serofibrinous
    (b) Purulent
    (c) Hemorrhagic
56. Pericarditis—chronic
    (a) Serous
    (b) Adhesive
57. Pneumopericardium

In order to add still further to our diagnosis we will frequently need to add a third factor, a physiological component. Such a classification in the nomenclature of the American Heart Association follows:

C—Physiological Diagnosis

1. Adams-Stokes syndrome
2. Anginal syndrome
3. Arhythmia (undiagnosed)
4. Auricular fibrillation
    (a) Paroxysmal
    (b) Chronic
5. Auricular flutter
    (a) Paroxysmal
    (b) Chronic
6. Auriculoventricular block
    (a) Prolonged conduction time
    (b) Incomplete
    (c) Complete
7. Bundle branch block
8. Cardiac insufficiency
9. Other arhythmia (specify)
10. Paroxysmal tachycardia
    (a) Auricular
    (b) Junctional
    (c) Ventricular
    (d) Unknown origin

11. Premature contractions
    (a) Auricular
    (b) Junctional
    (c) Ventricular
    (d) Unknown origin
12. Pulsus alternans
13. Regular sinus rhythm
14. Sinus arrest
15. Sinus arhythmia
16. Sinus bradycardia
17. Sinus tachycardia
18. Valvular incompetency
    (a) Aortic incompetency
    (b) Mitral incompetency
    (c) Pulmonic incompetency
    (d) Tricuspid incompetency
19. Ventricular escape
20. Ventricular fibrillation
21. Wandering pacemaker

It is possible to have made our diagnosis in conformity with the requirements of the etiological, anatomical and physiological components and still have left out the thing which I regard as perhaps the most important of all, namely an estimate of the patient's functional capacity. From a practical standpoint it is much more important to know how much activity to permit our patient than it is to know the details of the lesion. In the past I am sure many patients were restricted almost, if not quite, to the point of invalidism because of "heart disease" *when there was positively no need for such restriction.* At the same time we should not permit our patient to exceed the limits of his cardiac reserve. In some of these patients we will need to remember the failing heart of middle age or what Dr. Christian calls chronic nonvalvular cardiac disease. We do not have any simple and reliable criteria for determining the functional capacity with accuracy but I believe a consideration of all the factors in any given case will serve as a reasonably satisfactory guide. I consider that this tendency to think of heart disease in terms of its effect on function is one of the biggest forward steps that we have made in recent years.

There follows a functional classification approved by the American Heart Association:

D—Functional Capacity

1. Patients with organic cardiac disease who are able to carry on ordinary physical activity without discomfort.
2. Patients with organic heart disease who are unable to carry on ordinary physical activity without discomfort.
   (a) Activity slightly limited
   (b) Activity greatly limited.
3. Patients with organic cardiac disease who have symptoms or signs of heart disease when at rest, unable to carry on any physical activity without discomfort.

E—Possible Heart Disease

Under this heading are included patients in whom the diagnosis of heart disease is uncertain but who show abnormal signs or symptoms referable to the heart.

F—Potential Heart Disease

Patients without heart disease whom it is advisable to follow because of the presence or history of an etiological factor which might cause heart disease.

It is in this last group that the possibility of greatest service to our patient exists. It opens up the entire subject of the prevention of heart disease. If we can take an aggressive attitude in removing the causes of heart disease we will be relieved of a large part of treatment in the groups where prognosis is not so favorable.

In concluding this somewhat rambling discussion I wish to emphasize the importance of the patient's history; I would especially emphasize the importance of an estimate of the patient's personality since this will help us in evaluating his story of his illness and will be a valuable guide in determining how much of the positive data that we have elicited shall be revealed to him. The value of a careful physical examination is self evident. I should like to stress the importance of a complete diagnosis where this is possible and I would stress especially the conception of cardiac disease in terms of functional capacity rather than anatomical changes. Having arrived at our diagnosis and having formed an opinion of the functional capacity of our patient's cardiovascular system we will seek out in the morbid condition present the factors which afford therapeutic indications.

UVEITIS*

By WM. F. BECKNER, M. D.
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THE pathology of most intraocular diseases is not available in the surgical sense, for it is impossible to excise portions of ciliary body, choroid and retina, and to a limited degree the iris, as the risk to visual disturbance is too great, therefore we must rely chiefly on the ophthalmoscope, clinical studies and therapeutic proof to determine the ocular reflections of systemic disease.

The uveal tract extends from the pupil in front to the optic nerve posteriorly, and is in relation externally with the sclera and internally with the retina, and is divided into three parts; viz., iris, ciliary body and the choroid. These parts are so intimately associated that when one part becomes diseased the others frequently participate. With respect to the blood supply the uveal tract falls into two portions, an anterior segment which comprises the iris and the ciliary body and the most anterior zone of the choroid, and a posterior segment which comprises the choroid. The circulatory relations however, bring about the extension of inflammations; therefore we may see inflammation appear within the iris or ciliary body or in the choroid which may later involve the whole uveal tract. Intraocular diseases, with few exceptions, are blood-borne in their last analysis.

The superior ophthalmic vein is the main outlet of the blood from the orbit. It receives blood from at least twelve different sources and drains a very wide area. It has been demonstrated that there is an almost complete absence of valves in these veins which allows a free movement of blood backwards and forwards.

Birch-Hirschfeld has demonstrated lymph spaces in the orbital tissues. The nasal sinuses are rich in lymphatics. The eye has large lymph spaces anteriorly and posteriorly which are known to be in relationship with the venæ verticosæ through the ciliary body and the choroid. Since the venæ verticosæ have free communication with the veins of the mucosa of the nasal sinuses, we have an open door between the nasal cavity and the intraorbital tissues in both the venous and lymphatic routes through which infection may easily pass.

There is convincing evidence that the intraocular fluids are derived from the general circulation by dialysis from the blood plasma through the walls of the capillaries; that these fluids are subject to the normal physicochemic laws which are concerned with osmotic changes, and, in health, chemically there is an almost identical similarity of the intraocular fluids, cerebrospinal fluid, perilymph, endolymph and synovial fluids, except that the fluids of the eye in health do not contain colloids due to the relative impermeability of the capillaries. This membrane resistance to passage of the colloids becomes greatly diminished in certain disorders, especially of the allergic type in which increased vascular permeability is the keynote of the resulting tissue changes.

Magitot[1], Duke-Elder[2] and Yudkin[3] have shown that whenever the vasomotor mechanism of the capillaries of the eyes becomes deranged owing to nervous, toxic, or infectious agents, proteins are allowed to pass through the permeable vessel walls, chlorides may be abstracted or stored and various forms of local or general intraocular edema occur. The degradation products of partial protein digestion for the most part are tissue poisons and call for a vascular and cellular reaction which is the body's most efficient means for destroying such foreign elements. Toxic effects of these products in the blood long have been recognized in general medicine. Their possible entrance and toxic action on

*Read before the Eye, Ear, Nose and Throat Section, W. Va. State Medical Association at Charleston on May 22, 1933.

the uveal tract and their effects in deranging ocular metabolism, osmotic pressure and fluid changes primarily or by promoting the formation of histamine should be considered in all obscure cases.

Frequently several major factors may be at work in cases of allergy. The clinical evidence depends not only on the location of the sensitized tissues, but also on whether the outstanding picture is one of breakdown of liver function and interference with the normal chemistry of the body from being overwhelmed by bacterial action alone or in combination with antigen arising from foods whether the reaction due to the formation of secondary antigens by the liver are vital factors, or whether local symptoms from the release of histamine are most marked.

We must not forget the importance of bacterial invasion in the early years of life, the primary antigen producing acute disease at that time, with sensitization lasting through a lifetime. Many chronic disorders of later life are due to the continuation of the original or subsequent bacterial infections, often in unsuspected localities, the production of continuous primary antigen therefrom, and the consequent continuous development of secondary antigen in the liver.

Mills and Martyn[4] have recently reported a series of forty-four cases of progressive ocular diseases for which no direct cause could be found in any systemic disease complex and in whom no treatment had been effective in checking the visual disaster. A urinary proteose was isolated from these patients to which they were sensitive. An autogenous solution of the proteose was made. They began with a minimal subcutaneous injection of a weak dilution of the autogenous urinary proteose every three to five days. All except three cases showed definite improvement.

Woods and Little[5] recently reporting a series of one hundred and fifty-three cases of various inflammations of the uveal tract found that twenty-one per cent gave a positive reaction to uveal pigment. All of the positive cases had had a penetrating wound of the eyeball either operative or traumatic, their observations were that treatment with uveal pigment, while not specific was of definite value in those cases where a definite hypersensitivity to pigment was demonstrated. At any rate those treated with pigment showed more improvement than those not so treated.

The causes most frequently mentioned in the etiology of uveitis are focal infections, syphilis and tuberculosis. The active and selective part which bacteria may play in producing uveitis from focal infection appears to have been established. It is not yet evident whether such relations are a result of chance or require previous bio-chemical changes or sensitization of ocular tissues to render them vulnerable. Many chronic conditions and repeated recurrences of intraocular inflammations, opacity of tissue or fluids, and functional disability for which no actual explanation is furnished by the usual routine general examination still remain, when syphilis, tuberculosis, cerebrospinal disease and frank focal infections are excluded. Scleritis, chronic and acute uveitis, vitreous opacities and degenerative changes are some of the ocular conditions which often have no adequate explanation in any demonstrable anatomicopathologic process cöexisting elsewhere in the body.

Rowe[6], contends that allergy is probably next to infection, the most common and important etiological agent in human symptomatology. Then in the light of biochemical changes already known to occur elsewhere in the body, a study of uveitis of obscure origin from the allergic standpoint is justified. I feel the changes often found in the uveal tract could be the counterpart of allergic reaction seen elsewhere in the body, for about 50% of all persons have an idiosyncrasy to one or more foreign substances.

Rosenow and Nickel[7], have clearly shown the selectivity of the locality of antibody deposit, as well as the specificity of the attacking streptococcal strains in uveitis and other conditions.

Different foci have been found. The most

frequent were the teeth, tonsils, prostate or cervix, and the nasal sinuses.

The storage of antibodies does not take place equally in all parts of the body and the specific allergic reaction therefore occurs only in those structures which contain antibodies. Barber[8] states that one area of the skin such as the eyelids may be sensitized, while the skin of the forearm or elsewhere gives no response to allergic tests. Similarly the bronchial, intestinal, iridic, ciliary and uterine musculature or the respiratory, alimentary, conjunctival or other mucosa may be sensitized without necessary sensitization of the skin. Selectivity of the locality of antibody deposit as well as specificity of the attacking streptococcal strains have already been demonstrated in cases of uveitis.

Toxins acting on sensitized tissues are capable of extensive tissue reaction and destruction without the presence of living bacteria. General resistance against focal infections may be maintained indefinitely only to be broken down by some special strain or illness when broken or lost immunity may supervene. The patient becomes allergic to his own special infection. Many sufferers from uveitis seem to have fallen into this class.

The specific infections, tuberculosis and syphilis, are well established in the etiology of uveal disease. Finnoff says: "A rise in intraocular tension in cases with large mutton fat deposits on the posterior surface of the cornea, a deep anterior chamber with vitreous exudates should strongly suggest tuberculous uveitis, especially if sympathetic ophthalmia and syphilis have been excluded."

If the patient has a positive serology or a known tubercular lesion elsewhere in the body we should suspect tuberculosis being the cause of the uveitis. Miliary tuberculosis of the choroid in existing general phenomena gives an absolute unfavorable prognosis for the life of the patient. It is therefore no matter for ophthalmologic care.

In all cases of uveitis with a demonstrable general syphilitic infection we usually regard this as the etiological factor, unless therapeutically proven otherwise.

But it must be remembered that a diagnosis of syphilis or tuberculosis does not establish the etiology of the existing uveitis, nor does the presence of foci of infection or demonstrated allergy preclude tuberculosis or syphilis being the exciting cause, for a combination of any of the two or all may be potent factors in producing the disease.

Trauma may produce a uveitis; perforating wounds of the eyeball and corneal ulcers by direct extension may set up severe cases of uveitis, resulting in blindness.

All cases of chronic uveitis are prone to recur after apparent cure or quiescence. I have often wondered if the initial attack of uveitis did not, in some cases, leave a latent or quiescent focus of infection in the uveal tract itself which only awaits a lowered metabolism or some constitutional or wasting disease to lower the resistance for the focus again to flare up in the uvea. While it has never been demonstrated, is it not possible for a focus of infection to be located in this area as well as in other organs or parts of the body?

The close association between rheumatism and uveal disease has been noted by many observers. Bacteria as a rule are not demonstrable in rheumatic tissue, yet the belief is pretty universal that rheumatism is related directly or indirectly to focal disease. Twenty-five or thirty years ago no one suspected that upper respiratory infections would shortly assume a leading rôle in the etiology of disease. Infections in the tonsils, teeth and nasal sinuses are far more potent causes in the production of uveal disease than was formerly thought.

In all forms of uveitis the eyes should be protected from undue light by tinted lenses or darkened room. We should use atropine and dionine locally to rest the eye and improve the nutrition. A few cases of uveitis of local origin may be treated with local measures only, but the majority of cases are recurrent or chronic and often of indeterminate origin, hence must be attacked systemically rather than from the local point of view.

In tubercular uveitis consideration must be

given to rest and general supportive treatment aside from the ordinary symptomatic treatment; tuberculin therapy comes into consideration, and enucleation is indicated in the hopelessly lost eyes and especially so in those rare cases in which the disease of the eye represents the primary focus. In syphilitic uveitis we probably have our most hopeful prognosis. A vigorous course of anti-syphilitic treatment usually arrests the destruction and a prolonged course of the iodides and mercurial inunctions may clean up a lot of the residue and improve the vision, and they very often render good service in the non-syphilitic cases.

In those cases developed from foci of infection elsewhere in the body, all foci of infection must be eliminated. It will do little good to eradicate the infection in the nasal sinuses and leave infected tonsils or teeth; the whole vicious circle must be attacked. If the weight of evidence favors foci of infection as the etiology, the sooner the operation and the eradication of these foci the better prospect of recovery and a lessening of a recurrence. An autogenous vaccine is often helpful. We like to give these cases, especially in the acute form, large doses of sodium salicylate until the physiological effect is reached. A course of sweat baths is also often very beneficial. Correction of impaired digestion and elimination, exclusion of allergic foods, an initial detoxication of the alimentary tract by means of purgation, enemas or colonic irrigation, all should be carried out.

Chronic inflammation of the uveal tract usually is resistant to treatment and is characterized by periods of quiescence after an exacerbation of varying degrees of activity, hence the treatment is often necessarily prolonged and difficult to carry out. Usually the more acute forms of uveitis demand more vigorous treatment. The most effective form of treatment we have today of combating localized acute infection is foreign protein injections. Many substances have been made available for parenteral injections from which varying degrees of thermal reaction may be expected and antibodies of non-specific character may be generated. Of all the substances we have tried, for quick results we believe boiled whole milk is the most reliable and safest. We usually start with an initial injection of 5 c.c. in the gluteal muscle, repeating the dose every twenty-four to forty-eight hours, and rapidly increasing the dose to 10 c.c. Usually a course of six to ten injections is given. Our observation has been that unless some manifest improvement follows four doses, there is little use to continue treatment.

For the subacute and chronic cases typhoid vaccine has been proven to be one of the best forms of this treatment. Starting with small doses it may be rapidly increased to 500,000,000 bacteria at one dose, depending on the individual reaction. The more rapid the increase the more violent the reaction, and we believe this induces healing more rapidly. The use of these fever producing proteins is a fairly safe procedure in the treatment of diseases of the uveal tract. Of course, the marked reactions following their use cannot be tolerated for more than a few weeks; then we may resort to the autogenous or stock vaccines, or to bacteriophage, and I am becoming convinced that I get better results with bacteriophage than the stock vaccines.

In reviewing the literature and in the knowledge of my own limited experience, I fully realize there is much still to be learned about this disease which is so detrimental to the happiness and usefulness of many of our eye patients. All available means of scientific knowledge, both as to etiology and treatment, must be applied, and then we still have many cases whom we are unable satisfactorily to relieve.

Discussion

Dr. E. C. Hartman, Parkersburg: The subject of uveitis is a large one and volumes have been written on the etiology, pathology and treatment. Dr. Beckner has quite thoroughly covered the essential points and I will have but few additions to make.

There are many mild cases of rather long duration that never consult an ophthalmologist until it is too late to receive but little or no benefit from

treatment. They have generally gone the rounds of optometrists and come in wearing tinted lenses, seeing spots, and stating that they were unable to be fitted up to normal. Examination generally discloses the sequelæ, faded and atrophic iris, vitreous opacities and changes in the fundus.

Recent advances in diagnosis have been made possible by higher magnification in the use of the slit lamp and microscopy. The presence, nature and location of precipitates on Descemet's membrane, the consistency of the aqueous, and the presence of cells in the fluid of the retrolental space, are easily discernible.

Keratitis frequently complicates a severe uveitis and deep vascularization of the cornea often follows, which confuses one in his differential diagnosis, especially if it is bilateral and has not been treated by him from the onset.

Likewise involvement of the retina and nerve head is by no means infrequent, and accounts for diminished acuity after all inflammatory symptoms have subsided.

If there is a negative Wassermann, focal infections lead in the etiology of the acute cases which are unilateral with no history of trauma. The most frequent sites in my experience have been the teeth, ethmoid and maxillary sinuses and the tonsils. Frequently eyes are lost or vision impaired by taking the patient's word about the condition of the teeth. It is far better to have a full mouth x-ray and be sure.

Summary: 1. A thorough study of the history of each case in regard to recent illnesses, infections and allergic tendencies is very essential. Make all tests and x-rays that you deem to be advisable.

2. Always remember that there can be more than one cause in each case; try to find and eliminate all of them.

3. After a negative Wassermann do a provocative and in many instances you will be surprised.

4. Salicylates and iodides, intravenously or orally, pushed to the limit, as a rule give good results.

5. Immunity against the organism is the main objective, whether artificial or acquired, and there is no doubt that vaccines, antigens, tuberculins and non-specific proteins stimulate the antibody forming mechanism of the system and hasten recovery.

6. Locally atropine, scopolamine, dionine, subconjunctival injections, hot fomentations, all mentioned by the essayist, are indispensable. Occasionally paracentesis or iridectomy is indicated for relief of tension, which should be watched very closely.

7. Be guarded in your prognosis and mention the possibility of a recurrence.

Dr. Walton S. Shepherd, Charleston (showing a case): The chief symptom here is blurring of the vision in the left eye, due to a hemorrhage in the anterior chamber. There is considerable pain which came on after the hemorrhage. Her history says this is the fourth hemorrhage in three years. She is now menstruating, but does not connect this with menstruation.

Examination will show that the anterior chamber of the left eye is filled with blood, and a tumor showing through this blood. The tumor is four millimeters in diameter. I saw her for the first time two days ago. At that time the tension was 18 in the right eye and 60 in the left, and today it was 35 in left, 28 is high normal limit. Dr. Fawcett saw this case with me this morning, and we discussed it. I thought it was most likely a sarcoma. He said a tuberculoma. After this discussion I believe he is right about it.

I saw a case not long ago—a tumor of the iris. The girl came in bringing her certificate of a negative Wassermann with almost complete synechia of both eyes, and a serious descemetitis. It was a reddish looking tumor, about three millimeters in diameter. It originated, not quite at the limbus, but extended almost to the border of the pupil. After examining her I decided it was syphilis. So I sent for a Wassermann; it came back four plus with all serological tests.

I had another case not long ago. A man had stuck a splinter into the cornea. Slit lamp showed penetration nearly to Descemet's membrane. It had been extracted before I saw him. He had a marked iritis. Every time I let him down from atropine he would kick up again. I put him on some mercury and he got a little better. By the way, he had two negative Wassermann reactions. I noticed there was a slight keloid growth on his arms where he had been punctured for his Wassermanns. I do not know whether that is significant to you gentlemen or not, but it has been significant to me. I gave him two doses of neosalvarsan, and he cleared up like magic. What he had I am not prepared to say. I did not have a Wassermann made; he already had two.

Another case that I had not long ago was a man who came in with a marked uveitis, so much floating material in the eye that you could not see the fundus. He gave a history of having had a slight injury by a foreign body at the limbus. I examined him thoroughly, and I told him to come back. He did not come back—passed out of the picture—but I believe that man had a small piece of steel that had penetrated into the eye and is there now. I mention that fact to call your attention to the possibilities of overlooking a small intraocular foreign body, and the importance of a careful x-ray. The above mentioned case may develop a sympathetic ophthalmia. I had the pleasure of associating with one of Gifford's men, and he said that he always used in sympathetic ophthalmia, salicylate of soda, 1 grain to a pound of weight given in divided doses in 24 hours. That sounds prodigious to use, but sometimes we get into a case where we wish we had something to use that gives even a ray of hope.

I have a case under observation now that has what I presume to be a tubercular choroiditis. She is the classical picture. I notice every time she says "Well I felt that last dose you gave me a little bit." I look into the eye and find there has been a little more hemorrhage. So it rather confirms the diagnosis.

Dr. Ivan Fawcett, Wheeling: I was glad to hear the fact stressed that the background is often allergic. I think we fail to appreciate to what extent allergy is present. There is some tendency to allergy in 50 per cent of the cases. Concerning infections in the teeth, we too often take the patient's statement as to whether or not their teeth are all right. The only way to find out is to have a full x-ray.

Concerning Dr. Shepherd's patient, it seems to me that the area is almost translucent, and soft, and I can nearly see through it. The characteristic bleeding indicates tuberculoma; not so with sarcoma. It certainly does look like it must be a tuberculoma until someone can prove it is otherwise. She probably has better vision, and I believe it should be treated as tuberculoma rather than sarcoma.

Dr. H. V. Thomas, Fairmont: We see a great deal in literature today on tuberculosis of the eye, and especially a lot in foreign literature. It certainly is true with me; I don't see much of tuberculosis which I can say with definite assurance is tuberculosis. Still the percentage which is reported abroad seems to be very much higher than in this country. I'd like to know from this section whether or not you see much tuberculosis which you can definitely prove is tuberculosis, or whether we are in error in this country in making the diagnosis, or lax in the diagnosis, compared with that abroad.

One other point I would like to make in regard to deciduous teeth in uveitis is I have seen one case in the last six months in a boy 12 years of age, with a descemetitis, and upon examination the only thing I could find as a cause of focal infection was one tooth, which was deciduous, and decayed clear down to the gum. It cleared up in a period of three to four weeks after removal of the tooth, with practically no other therapy. I think we get into the habit of passing up the milk teeth, so to speak, as cause of little trouble, and I believe if we pay more attention to this, possibly we will eliminate at least a few cases on that line. It never had occurred to me before that the milk teeth could produce this result, and form a definite focus of infection in the eye.

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GRADUATES FROM FOREIGN SCHOOLS

The Louisiana State Board of Medical Examiners has adopted a resolution requiring every physician from a foreign medical school to have, in addition to a foreign diploma, one from a medical college located in the United States and recognized by the board. The regulation went into effect last December.

NASAL MECHANICS*

By Sobisca S. Hall, M. D., Harry V. Thomas, M. D.
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In a preliminary survey of patients presenting because of nasal complaints and closely associated conditions, we have been impressed with certain findings. In considering such we wish to call attention to several problems which appear to have as a foundation a partial or complete blocking on a mechanical basis.

There are major functions which the nose and adjacent structures perform. We wish to consider five such functions; namely: (1) the warming of inspired air, (2) admixture of moisture, (3) smell, (4) elimination of airborne infections, (5) vocal resonance.

Any process which causes a derangement of one of the above-named functions usually affects the others, at least to some variable degree. In the light of such knowledge we are to consider obstructive causes which result in a deviation from the normal.

In the examination of infants there is found a group of congenital malformations. In this group the harelip and cleft-palate are not uncommon. One frequently finds in such conditions air spaces far from normal. Complete obstruction of one side may be present. The deviation of air currents thereby produced gives resultant changes in the mucous membranes. To what extent such deviations cause systemic upsets from the normal is not well known or understood.

We assume that nature has provided an arrangement of balance by which inspired air is sufficiently warmed and moistened so as not to cause an upset of the normal. It therefore follows that nasal obstruction will, in some manner, cause an unbalance in the normal process. An obstruction in one nasal passage sets up a mechanical problem whereby the unobstructed side is called upon to do more than that for which it was intended. If more air is required to pass through a given space, a greater activity of the mucous membrane must take place in order to establish a moisture balance. The opposite condition is present in the obstructed side where less air passes through and a stasis of the secretions is found. At first no derangement in the mucous membranes will be present, but after sufficient time has elapsed a readjustment will take place. Whether nature will restore a balance temporarily or permanently depends upon the amount and degree of trouble present. Certainly the attempt is always made.

One of the primary duties of the rhinologist should be to correct deformities at the earliest possible time compatible with the life and safety of the patient. To leave such procedures until the patient is driven in desperation to avoid serious complications appears unworthy of the times, since this age is considered one of prevention.

To correct congenital deformities may mean multiple-stage operative procedures. Much may be accomplished by beginning early before growth-determining factors have become too well set in their course. Residual scars and slight remaining deformities will disappear or be greatly reduced if early rather than late interference be the rule.

In correcting the more severe deformities it is felt that a well-formed program with sufficient and painstaking explanation to parents will accomplish much in the several-stage operations. Too often parents are led to believe cleft-palate operations are simple procedures. Acting under such promises and presumption, both physician and parent are often chagrined with results.

Early closure of a cleft-palate means more normal growth not only to nasal structures but also to oral. Surrounding sinuses and turbinates are influenced in course of growth

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by malformations elsewhere. Obstructions in the nose or early sinus infection may cause an arrest or a lack of development of ethmoid and frontal sinuses. We have not yet seen a mechanical basis with absence of a maxillary sinus in which we could believe the absence was due to the obstruction. We feel, however, that such condition may be possible. Lack of frontal and ethmoidal sinuses is not rare, even though uncommon.

Enlarged adenoids in early infancy and childhood form a problem of great importance. When one considers the factors resulting from such enlargement the true worth of his consideration becomes more keenly appreciated. One rarely sees mastoiditis which can be proved definitely as arising from external routes, other than the Eustachian tubes. We believe many cases of mastoiditis may be avoided if sufficient attention be centered upon early removal of the adenoid tissue of the obstructive type. A wider influence exists in the nose. How many cases of juvenile sinusitis may be traced to adenoid blocking, we do not know. It is certainly not taking one's thoughts too far afield to picture such a process as a plausible cause.

The profession has received much criticism for the wholesale removal of tonsils and adenoids. It is possible we have overemphasized the tonsil problem because there we may so easily demonstrate enlargement. We may have to readjust our views as to the combined procedure. In early youth or infancy it may be wiser to remove obstructing adenoids, leaving the tonsils for a later time.

The descending, beneficiary rôle played by the lymphatic glands is not well understood. It is within reason to believe that the tonsils do serve an important function and, as has been claimed, give to the body a hormone secretion whose worth is not known. A few cases now and then, both juvenile and adult, appear to be more susceptible to colds after tonsillectomy. The deciding procedure to be followed should come after carefully studying the problem in toto. We urge that every juvenile case have a careful nasal examination and sinusitis be excluded before tonsillectomy.

It is true that both tonsils and adenoids may be removed at one sitting with less expense than double hospitalization. It is also possible that much might be gained by the early removal of the adenoids, with resultant subsiding of certain types of tonsillar conditions, thus allowing the tonsils to perform their natural function, presumptive as this may be. Time and careful study should shed much needed light upon this point.

Head colds, we believe, are often the resultant changes caused by blocking from enlarged adenoids. Many times the foundation for nasal trouble is laid before symptoms arise and is centered primarily upon nasal problems. The primary factor will, in due course, become a secondary one as it progresses to the development of sinusitis in the presence of blocked nasal passages.

Text-books of today give little information as to the influence of early adenoid blocking on Eustachian tube changes. To what extent such early changes in the tubes play upon later chronic deafness is not well understood.

The pediatricians have done much in the elimination of pacifiers. Thumb-sucking also is receiving attention. Ill-formed palatine arches go hand in hand with septal deformities. Education of public and profession here becomes the weapon of defense. We believe such teaching, carried into practice, well help reduce the percentage of deformed nasal structures. True, no marked improvement is to be expected by this teaching, but any influencing force which will reduce the percentage of deformities will help greatly.

Traumatic violence in this day and age is a common occurrence in youth. We hesitate to say nasal fractures are more common than in years past, but with athletic trends, motor appliances and other present day findings, the number of nasal deformities thus resulting appears on the increase. Our plea here is for closer coöperation between the family physicians who first see such cases and the rhinologists.

Early resetting of fractures for good re-

sults certainly holds in the nasal field as well as in long bones, nor can one say after-results are less important. A proper setting of nasal fractures can best be accomplished by a competent rhinologist. After healing has taken place and a patient presents because of external or internal deformity, the problems of readjustment to the approaching normal become more intricate as well as more costly. A simple examination of the nose in a straight external contour after suspected fracture is not sufficient. A thorough examination by one familiar with involved structures is important. Sinus blocking with septal and turbinate deformities following nasal fractures are frequently traceable to neglect at the time of the accident. Proper setting and packing at the earliest possible time with competent after care will again lower the percentage of latent complications. Röentgenograms are essential for diagnosis as well as for records.

It is uncommon to find sinus disease in a normal nose with sufficient aeration and drainage. We believe that sinus disease is too often the result of factors which arise because of nasal blocking. In the attempt to free the patient of sinus trouble, proper attention must likewise be paid to correcting the formative elements arising from septal and turbinate deformities. Adequate space for drainage and aeration must be provided if sinus surgery is to be successful.

The chronic rhinorrheas of youth are, in their inception, indicative of obstruction of some type. The prolonged discharge produces the protective mechanism of nature, such as the hypertrophic or atrophic changes. The terminal changes which will result depend upon the time element as well as the type of infection.

Picking of the nose is an indication that there is some other trouble. Dried secretions or other factors usually are present. When such a condition is noted, investigation is in order to determine the cause and to eliminate it so as to end the habit. One rarely sees a septal perforation in youth from "nose picking." In the adult, however, perforation from this cause is not rare, although it is uncommon. Any perforation, no matter what the cause, produces air current changes within the nose. These holes, we believe, should be closed if possible, even though such closure may be difficult with often less gratifying results.

Turbinate blocking of the sinus ostia is a common finding. As one views an enlarged turbinate situated so that when quiescent it gives no trouble, it should be looked upon with suspicion and so treated that when congestive features intervene blocking will not occur.

These enlarged turbinates very frequently go hand in hand with septal deformities. The correction of one may help the other, but we believe the best results are to be obtained in attacking both. Spurs and enlargement of turbinates deflect air currents, as well as sometimes completely blocking them. Any degree of blocking results in a like degree of the formation of a "wet nose," either localized or general. Localized blocking may result in increased secretory and absorptive functions of the mucous membranes in the area involved. The blocking may be seasonal in character, as for example in the hay fever patient. Winter recurrent colds are too commonly of the same nature.

We do not believe nasal deformities when corrected will eliminate seasonal causative agents. Many sufferers are more comfortable during attacks if the mechanical blocking elements are corrected prior to troublesome periods. The difficulties are often much lessened in severity as well as shortened in duration following mechanical corrections. Careful study as to the etiology of allergic findings is necessary and is of the greatest value. We believe it is just as wrong for allergic patients with bad nasal mechanics to be treated by antigens alone as it would be to treat the mechanical problem adequately and neglect the medical side. Combined action will give best results, bring greatest relief to the patient and most satisfaction to the physician.

A disease which is specific in the production of poor nasal mechanics, such as syphilis,

requires the utmost care both in study and in medicinal treatment. Specific treatment is the first step after diagnosis. Any necessary surgical procedure should follow after disease control and not be neglected because of the specificity. Adequate coöperation between internist and rhinologist is essential if the ideal results are to be obtained.

Late changes in nasal mechanics are the results of chronicity. Polypi do not arise spontaneously, but are the outcome of repeated insults to the membranes from which they arise. Once polypi are present, the treatment should be more than the removal of the growths. If this procedure alone be carried out, both patient and physician must accept the high possibility of recurrence with the resultant changes in the intervening period.

The loss of the sense of smell rarely takes place in a nose having sufficient space for aeration and drainage. It is not uncommon to find this sense impaired or lost in a blocked nose. The prognosis, once the sense of smell is disturbed by blocking factors, is often proportional to the time element intervening as well as to the degree of obstruction. We have found that after relief from blocking the return of this important function frequently takes place. In several of our cases a disturbance in the senses of smell and taste has been present and both senses returned following adequate surgery.

Post-operative adhesions are another cause for retained secretions and partial blocking of sinus drainage. In selected cases there may be excellent reasons for the actual formation of such adhesions. There are many cases, however, where adhesions result and their removal is well indicated. The attention given to post-operative adhesions will frequently save the physician embarrassment as well as relieve the patient of pain and headache. The etiology of pain from this source is little and poorly understood.

Post nasal drippage of the chronic type will often be materially helped by giving attention to post-operative adhesions of the turbinates. Chronic bronchitic and laryngeal sufferers are frequently notably helped once the post nasal secretions are partially or completely controlled.

We believe that in the nasal mucosa nature has provided man with a protective mechanism against infection. Since air borne infections pass largely through this portal of entry, we feel it is the duty of the rhinologist to assist to the fullest in preserving this most important agent. Only by maintaining a healthy mucous membrane, or as near its equivalent as possible, can we assist this arm of defense.

The rôle played by the nose and accessory sinuses as resonators is not clearly understood. We need only to call attention to the nasal "twang" and voice changes present where nasal blocking exists. Sufficient to say these changes do occur, the degree being frequently influenced by the amount of blocking.

Radiographs are important in determining the degree of blocking in the nose. Plates taken in different planes are of value, but like any other aid in arriving at conclusions are to be used only as help in corroborating clinical findings. Plates serve as a permanent record of findings and are also valuable in demonstration both in and out of court. Even though the patient knows nothing about roentgenograms he can frequently see from pictures that which he fails to grasp by way of explanation. Air spaces and the difference in shadows can easily be pointed out. This, with the patient's own knowledge of his clinical course, may be and often is very convincing evidence for necessary procedures outlined.

Age incidence plays an important rôle in benefits to be derived. Palliative measures in the aged are often imperative. One must never lose sight of the shock produced in nasal surgery, especially in the later decades of life. However, if results are to be obtained and the patient made comfortable in his remaining years, the rhinologist must meet the problems which are presented.

Radical treatment is a misnomer; we believe adequate treatment to be a more correct term.

We make no claim of presenting any new

facts or procedures in this paper, but think it timely to call attention to little stressed findings which are, nevertheless, of major importance. Minute details in this discussion have not been given purposely, because of the status of this group.

In conclusion, we believe that factors producing mechanical blocking of the nasal passages should be corrected as early as possible by adequate treatment.

Discussion

Dr. F. O. Marple, Huntington: Correction of deformities in infants and children as far as nasal cavities are concerned is certainly a very limited field. One would hesitate considerably before attempting a septum or turbinate operation of any type. A turbinectomy in any patient is always to be avoided if possible, since a dry nose or too much air space will be the result. I have always emphasized conservatism in young patients who require nasal surgery.

Many malformations can be avoided by the obstetrician's careful attention to the nose immediately following delivery, by the correct use of an elevator to reduce fractures or displacements which do occur. Also the parents to be instructed as to the importance of examination by a rhinologist, following any injury to the child's nose, no matter how simple.

I agree that there should be a definite indication for removal of tonsils and adenoids, and that when adenoids alone are at fault, the tonsils should not be removed.

Enlarged turbinates are always present in septal deviations, opposite the convexity, as a compensating medium, but we limit our surgery to the septum only.

I likewise acquiesce to correcting deformities in one who is subject to allergic reactions and hyperesthetic attacks.

Post-operative adhesions are due to poor technique and inadequate after care.

Certainly one of the predominating causes of bronchitis is upper respiratory infections, such as sinusitis. Since the nasal mucosa with its normal secretions is a protective medium, a conservative procedure is in order, eliminating all drastic methods, such as irrigations.

I believe that in adults who have had nasal obstructions corrected that have existed for years, the results have been very disappointing in many cases.

Dr. V. E. Holcombe, Charleston: I agree in substance with everything Dr. Marple has said. I have had a little experience with this question in a very intimate way, having had a turbinate removed some ten or fifteen years ago. The whole turbinate was removed at the time. Now, if I had the same condition, I would have the turbinate split and the medial half removed. I think that all nasal obstructions should be removed and when it is possible, the turbinate should be partially removed by submucous resection as such a procedure ultimately leaves a normal looking nose. I think the procedure is applicable to both middle and inferior turbinates. It requires a longer time to do the work, but it is certainly worth the extra effort. I subsequently had a submucous resection of the septum. Before the resection, I had about four severe colds a year, with a great deal of irritation and sneezing which, I think, was due to the pressure of the septum against the turbinate. Since I have had this work done, I have been very much better. I certainly am a confirmed advocate of the proper handling of these cases.

Dr. F. T. Scanlon, Morgantown: I feel that possibly I have been a little ultra-conservative in some of my work. I always tell my patients that it is possible to remove a bit more tissue but it is not possible to replace some after it has been removed.

I had my own tonsils romoved fairly late in life. I have been greatly relieved and feel very much stronger and more buoyant since that was done three years ago. My wife had a submucous resection when she was past 30 years old. She actually did not know what normal breathing was until that operation was done. This testimony is fairly close home.

My judgment may not be mature, but I am doubtful whether there has ever been very much harm done by the wholesale removal of tonsils and adenoids. I read recently in Dr. Hay's book that there is absolutely no harm if the patient is past the age of two years. He does not advise it unless there is a definite indication prior to that time.

I believe we will all agree that we do not understand very perfectly the function of the tonsil, but I can well see that it does have a very important function. Yet I have more frequently fallen down by refusing to advise a tonsil and adenoid operation than otherwise. We need only to see a few cases of heart involvement following tonsillitis to realize that a tonsillectomy is better than a passing funeral

procession. I imagine many of we older men have had that experience.

I don't know of anything in the practice of medicine that counts for more than good common horse sense. The older I get the more I am convinced of the unreasonableness of the individual patient when a nose operation is involved. You promise a certain result and the patient is disappointed. If that comes up for discussion at an afternoon session of the Ladies Aid it will do more harm than a hundred operations.

Dr. Walton S. Shepherd, Charleston: Dr. Hall's paper was very fine and he stressed adequate surgery. I want to emphasize the importance of this. Speaking of submucous resection of the turbinates, I have done a great many of them. It is hard work, but you can do it. I simply split the turbinate under the anterior surface, where we have a hypertrophy, and push the mucous membrane up to the septum side and remove the inner half.

Of course one of the things that disturbs us most is the disturbances in children, when we can't do submucous resections. Some men mentioned doing submucous resections on children. I am frank in telling you that I never had the nerve to do it. When a person does no a nice piece of work in the nose, it certainly is most gratifying.

I do think that when we do submucous resection, the first thing to do is to prepare the field well. See that you have a place to put this flacid membrane when you have gotten it loose. In young subjects there will be compensatory changes after we move the septum and the hypertrophies will make more room as the result of natural shrinkage. Not so in older subjects.

Dr. V. T. Churchman, Sr., Charleston: I did my first submucous resection on April 5, 1904, and have been doing them pretty regularly ever since. I have not within the last 20 years removed a turbinate body. Dr. Shepherd says he has done submucous resection of the turbinate with very nice results. I have not operated on any child under eight years of age for a submucous resection of the septum. I have seen cases that seemed to have definitely indicated a submucous resection of the septum. In the younger children I have adopted the plan of taking a nasal forceps and straightening up the septum, and giving them the best relief possible until they are a little older.

Some years ago I began to think that tonsils were all right for children to have. I began to try, in cases of simple hypertrophy of the tonsils, to remove a portion of the tonsil and leave a portion, and found that younger children did nicely and gave better results. Later on in life the entire tonsils were removed if they became infected.

My nasal surgery has been one of the most satisfactory parts of my work. A man must be conservative. I would like to ask how many of you take an x-ray picture of your nasal septum before you do an operation on it. If you do, how many cases do you find with a deflection of the nasal plate of the ethmoid? You may remove the deflected septum all you want, and get a perfect result, apparently, but you have given your patient no relief unless you have removed that deflected plate of the ethmoid. That sounds a little radical, but if an x-ray shows that you have a deflection of the nasal plate of the ethmoid you have to remove it if you expect to get any benefit for your patient.

Be careful with your submucous work. Get a good x-ray picture of it and see whether or not you may have a deflection of the nasal plate of the ethmoid that is making the trouble.

Dr. Thomas Moore, Huntington: Years ago I was subject to laryngitis on the slightest provocation. In 1909 I had a submucous resection, and since that time I have only had one attack of laryngitis. That was a few years ago, when I think I inspired a foreign body.

Most men who write text books pick up an old book and copy a great deal that is written in it. Practically all of the text-books even today, tell us that we must straighten and remove any nasal obstruction in our O. M. C. C. cases. I have never in my experience seen a case of O. M. C. C. that was benefited by removing a nasal obstruction. This is not original with me. It has been preached for a number of years, but I want to say that I have repeatedly straightened deviated septums, hoping to help these old cases of O. M. C. C. especially if they were of long duration and were growing worse as they always do.

In 1904 Dudley S. Reynolds presented before the American Academy of Ophthalmology and Oto-Laryngology a pie plate of inferior turbinates that he had removed. This meeting was held in Denver. He said if you just take out inferior turbinates you will not need to remove the adenoids, for they will atrophy. Only one man in the entire meeting at that time had the courage to get up and antagonize him, and that was a doctor from St. Louis, who

died several years ago. Dr. C. R. Holmes reported 3,000 cases of inferior turbinectomies that he had done, and, to the credit of the American Laryngological Association, he was rejected for membership on account of this statement. On the other hand my wife was one of his patients at that time, upon whom he removed the inferior turbinates in preference to doing a submucous resection. This was in 1900. I asked my wife within the last year if this had done her any good. She said she never had any operation done by a physician that had helped her more. There has never been any dryness. We don't do it today, however, and regard it as a crime. But very few of us who have followed men who did this have seen the bad results that we were led to believe would follow it.

Dr. Hall's is an excellent paper, and yet some people have gone through life with absolutely no discomfort from a congenital blocking of one side of the nose. One of my distinguished friends came to me for ear trouble and had this condition. He had congenital blocking of the nasal passage on one side. He had never suffered any discomfort from it.

I never have removed adenoids except in very young children that I haven't later had to take out the tonsils, and I must say that I do believe that if a child, especially past two or three years of age, has to be subjected to an anesthetic for adenectomy if there is any disease at all of the tonsils they should be removed at that time.

In regard to perforation of the septum, I think that the majority of the cases that suffer from this are purely psychic. The man who did a submucous on me told me five years afterward that I had a perforated septum. I have never had any other reason to know it.

Dr. Hall (closing the discussion): I cannot understand what I said, that would make anyone jump to the conclusion that this paper advocates radicalism. Some of you must have been in a defensive mood while listening to this article. A specific paragraph calls for adequate nasal surgery. That adequacy is left in the hands of the individual rhinologist and it may mean anything from the opening of a large ethmoid cell in the pre-turbinal region to simple lavage, but let me emphasize that whatever is done let it be adequate. After all, many of you, as well as myself, have been confronted with the unpleasant situation of the patient deciding what he will have done regardless of the indications. As to indications for nasal surgery, if you look in any of your standard text-books you will not find a list of such. In our opinion there are two types of indications; one that has as its purpose corrective surgery of the endonasal structures as such, and relief of unpleasant local symptoms in the nose. The second has to do with removal of foci of infection and influences that effect the whole human organism. Incidentally, it is one which is so often overlooked or at least unappreciated. It is not hard to understand that with this viewpoint in mind, the treatment instituted by one rhinologist might seem extremely radical on the basis of corrective surgery to the local structure when as a matter of fact when it is considered on the basis of preventive medicine and a removal of disease that might influence distant organs the procedure would be ultra-conservative. Unfortunately there are no criteria by which one can judge these things collectively. There are many different indications for nasal surgery however. Conservative treatment in the aged and especially in the very young is mandatory. It is an adage that in children, up until the formative period of life is past, you shall not disturb any tissues especially those necessary to developmental facial characteristics. I have never done a submucous resection under the age of 16 years; I don't think I ever shall.

With regard to the tonsils; you must remember that the men in this section don't represent a very large portion of those men doing tonsillectomies. The general surgeon does the major portion of these operations. It is interesting to note that the possible coexisting paranasal sinus disease in children is overlooked entirely in the vast majority of these cases because of the fact that the operators are actually incompetent to determine coexisting sinus disease. It is no wonder to me that little children show up a year or so later with a paranasal sinus disease for which the tonsil operation gets credit when as a matter of fact, and I have seen this over and over in my own experience, these little children had a sinus disease to begin with and it was ignored or unrecognized by the examiner. If you doubt this statement, get out the records from the various hospitals where the major part of the tonsils are being removed by the general surgeons and you will be surprised to see how little is recorded with regard to the nasal findings at the time of the operations. Can anyone decide whether or when a tonsil is normal? Given a so-called normal tonsil in the patient of rheumatic tendency, what is your atti-

tude? I know your answer. It is remove this *possible* focus.

Shall we allow deformities within the nose, and by these I mean hypertrophic obstructive turbinates, deviated septa and in some cases deformed external contours, to induce chronic changes within these structures later in life? How many patients have you seen at 65 years of age or older whom you wish had had their endonasal structures corrected earlier in life? They come to you at a time that such procedure is a real hazard. What shall be my attitude as a young man? Shall I allow chronic changes to go ahead and develop when recognized early in life before any material damage has been done or shall I "sit by" and allow changes to develop that we have all recognized? We don't know what obstructions of the septum do by deflecting air currents from their normal paths. There has recently been some very excellent articles on nasal physiology one of which was written by Proetz and I can only recommend it for your reading. When you have read these articles you will then appreciate the circumstances surrounding chronic hypertrophy and polypoid precursors. This is a fertile field for thought and investigation and one which has been only too long neglected. I am quick to admit that even as young as I am, I have seen many cases of failures where adequate nasal surgery was attempted. I have also some more unfortunate results where a more conservative attitude was followed out.

In my humble opinion, there is but one way that we can save ourselves the indictment of "once a sinus operation you will have to have more"; only an adequate nasal surgical program with a keen knowledge of the pathology present and with a deep appreciation of what will go on in this case unless it is corrected, can possibly influence more unfortunate developments. I may be wrong about what constitutes adequacy in these nasal chambers and unfortunately there is no criterion which we can follow, but may we say that if we are strictly honest, reasonably intelligent and well grounded in knowledge relative to nasal physiology and pathology, it will not be hard for us to obtain a reasonably good result in most cases.

THE FIRST TOOTHBRUSH

According to an article in *White Metal News Letter*, the invention of the toothbrush grew out of the famous Gordon Riots in 1780, in London. At this period, the cleaning of teeth was a crude process, carried out by a single, chisel shaped twig.

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

Tuberculosis associations realize that no one can, by his own efforts, protect himself and his family against tuberculosis. They are, therefore, calling attention this year to the need of intelligent, well-directed group action. The slogan of their 1934 educational campaign is "Tuberculosis Robs You—Public Health Protects You." The modern practitioner plays an important rôle in public health practice. The rapid development of public health and scientific medicine, and the need for social adjustments of various kinds are responsible, here and there, for misunderstanding if not actual conflict. How coöperative relationships between the health department and the medical profession have been effected in one city, Detroit, Michigan, has been reported by Henry F. Vaughan, Health Commissioner of Detroit, and Ledru O. Geib of the Wayne County Medical Society. A brief description of the Detroit plan follows.

Virtually every qualified physician in Detroit has become, to all intents and purposes, a deputy health commissioner, and his office a center for preventive medicine.

The ultimate objective of the plan is to have the family doctor take care of his patients in health as well as in time of illness. Another objective is to re-educate the public to look to the physician in private practice for such preventive services as diphtheria protection, small-pox vaccination and periodic health examinations, rather than to depend upon public agencies and free clinics—in short, to impress upon the public mind the fact that preventive medicine is a purchasable thing, and something that is to be paid for in the same manner as any other desirable commodity.

Family Doctor is the Unit—The Detroit Plan is a group plan—the group being the organized medical society. It is not built about a unit or community health service constructed around a clinic or hospital center, but rests upon the family physician who becomes the unit on which medical practice is constructed. At present 1,100 doctors are active participants. There is no insurance scheme but a

reasonable honorarium is paid to physicians for services rendered in their own offices to those who are unable to pay. Funds for this purpose come from the budget of the health department.

Physicians who have agreed to coöperate abide by certain orders and regulations prepared jointly by the medical society and the health department. The plan began with a diphtheria prevention program. It was agreed that on certain days the coöperating physician will give toxin-antitoxin or toxoid for one dollar per treatment. The agreement does not hinder the physician from charging his client any price he chooses if the patient comes at any other hour. The physician also agrees that if the patient cannot pay he will render the service free to the patient and the health department agrees to reimburse him at the rate of fifty cents for each service. Each coöperating physician is supplied with record cards for his own use, and postcards which he mails to the health department for recording each series of toxin-antitoxin or toxoid treatments.

This scheme enables the health department continually to broadcast to the public that diphtheria immunization may be obtained at a certain price or for nothing if one is unable to pay.

While the plan was introduced with the diphtheria prevention campaign the ultimate purpose is to secure the participation of every qualified and prepared physician in the practice of preventive medicine. Recently tuberculosis prevention was added to the scheme. This plan is regarded not as a substitute to the tuberculin testing and x-ray service in the schools as at present conducted, but as a supplement to it. The procedure is outlined in the following circular which was sent to all physicians in Detroit.

Outline of Procedure—"Children and adults will be urged to come to you by an active educational program through the radio, billboards, newspaper articles, and speakers before lay groups.

"There will be issued to school children a 'Notice to Parents' urging that the children be taken to their physician. If parents do not have a regular physician the Wayne County Medical Society will furnish them with the name of one or two coöperating physicians who reside in their neighborhood.

"The first visit should include a tuberculin test and a general physical examination. Tuberculin for the Von Pirquet test can be secured without charge (for Detroit) from the Department of Health, at the Wayne County Medical Society, or at the Detroit Tuberculosis Sanatorium.

"Every individual who has a positive tuberculin test should have an x-ray examination. The röentgenologists have agreed to accept your statement regarding the ability of the individual to pay for the x-ray service. If you feel that the patient is unable to pay even a part of the x-ray cost, he may be sent to the Herman Kiefer Hospital where the x-ray examination will be made without charge (for residents of Detroit) and a report will be sent to you.

"The charge for this examination should be arranged between the physician and the patient but no one should be turned away because of inability to pay.

"We expect that a fee of ten cents will be paid for each report sent in.

"When a positive diagnosis is made, the case should be reported to the Department of Health on the regular forms provided for that purpose. The state law requires that these records be not open to public inspection."

With this outline was sent a letter signed by the Wayne County Medical Society, the Detroit Tuberculosis Sanatorium and the Department of Health inviting the physicians to participate. Those who reported received a second letter thanking them for their coöperation, stating where tuberculin might be obtained and urging them to attend a series of clinical conferences arranged by the joint staffs of the sanatoria. With this letter were enclosed examination blanks, and postcards on which to report cases found.

Health officials and representatives of medical associations are watching with keen interest the experiment at Detroit. While it may not be adaptable for all communities it throws light on the problem of medical and public health relationships and suggests the basis on which coöperation may be effected.

MENTAL DEFICIENCY MEETING

The annual meeting of the American Association on Mental Deficiency will be held at the Hotel Waldorf Astoria, New York, May 26, 27, 28 and 29, 1934. The Saturday session, May 26th, will be given over to the sociological, psychological and the special educational aspects of the problem in order that local social workers and school teachers may have an opportunity to attend without interfering with their regular duties.

PRESIDENT'S PAGE

We have heard considerable comment over the state during the past few months relative to the prospect of reducing the state dues. One or two county medical societies have instructed their delegates to bring this matter before the House of Delegates at the Huntington meeting.

If a majority of the members of the Association feel that the state dues are too high, then by all means they should be reduced. However, we believe that the sentiment in favor of a reduction would be materially lessened if more of our members would familiarize themselves with the progress and accomplishments of organized medicine in West Virginia.

The annual dues of the Association are $10 per year. One dollar of this amount goes into the defense fund, one dollar into the indigent fund and two dollars for the WEST VIRGINIA MEDICAL JOURNAL. This leaves a balance of six dollars per year for operating expense. With approximately 1,000 members, each paying six dollars into the general fund, the annual income of this fund is approximately $6,000 per year. It would be difficult for the Association to operate on any less.

The next question, therefore, is whether or not the Association is worth the cost. Personally we feel that it is worth far more than the modest appropriation which we make for its maintenance. We preserve our identity through a permanent full-time headquarters in the Capital city; we receive capable legislative representation; we receive protection, through the courts, on important legal questions involving the entire medical profession; we receive excellent editorial and financial management of our JOURNAL; we are represented before various governmental boards and departments on questions concerning the practice of medicine and we benefit in scores of minor services performed routinely by our Association. We feel that the $10 which we pay each year to the Association is one investment which always brings a liberal and satisfactory return.

Our Association means more to the medical profession today than perhaps at any other time in its history. We would dislike to see its effectiveness impaired by a reduction in dues at this time.

Roy Lee Miller

President.

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THE STATE MEETING

Our next annual meeting, which is to be held at the Hotel Pritchard, Huntington, on May 14, 15 and 16, 1934, promises to be the largest and most interesting gathering of doctors in the history of the Association. The general program outline with the names and subjects of the various speakers will be found elsewhere in this issue.

The doctors of Cabell County are eagerly looking forward to their duties as host to the visiting physicians. No stone is being left unturned to provide suitable entertainment for the doctors and their wives. One of the features now being planned is a cabaret dinner dance which will close the convention on Wednesday evening, May 16. The entertainment committee of the Cabell County Medical Society is now endeavoring to secure special outside talent for this affair.

In addition to the scientific program of the Association, the Woman's Auxiliary has arranged a well-rounded program of instruction and entertainment for the visiting doctors' wives. Various luncheons and other diversions have been planned in addition to their regular meetings.

The Association program for the Huntington meeting is arranged very similar to that of the Charleston meeting last year, with the exception that considerably more time will be unassigned. Only one paper has been scheduled for the afternoons of May 15 and 16. The remainder of both afternoons will be devoted to optional clinical conferences.

The four sectional meetings will be held on Monday afternoon, May 14, and the actual convention will be called to order by Dr. Roy Ben Miller, President, on the morning of May 15. Other preconvention activities will include a meeting of the Council on Wednesday morning, a called meeting of the West Virginia Heart Association, and a meeting of the House of Delegates on Monday evening. The second meeting of the House of Delegates for the purpose of electing officers for 1935 will be held on Tuesday evening immediately following the annual President's address of Dr. Miller.

The general scientific program will continue through Tuesday and Wednesday and the convention will close with the dinner dance on Wednesday evening.

MORE ON LIST PRACTICE

From present indications we believe that hospital "list" practice in West Virginia is on the decline. We base that opinion on the vigorous steps being taken by several county medical societies in oppostiion to this phase of medical and hospital care. We believe that the doctors in southern West Virginia have finally awakened to the fact that "list" hospital practice, if allowed to continue, will eventually ruin the private practice of medicine.

It is somewhat surprising that the independent physicians and surgeons have put up with "list" hospital practice as long as they have. Many private practitioners in some of the larger cities of southern West Virginia have actually given their services absolutely free to "list" hospitals and, at the same time, condemned the form of practice which they were fostering with their own skill. Until recently these doctors have been somewhat afraid to let go the tiger's tail.

It is argued by the proponents of "list" hospital practice that the "list" enables the hospital to experience a steady and constant flow of income to support laboratory, x-ray and other services that would otherwise not be obtainable. There are, however, a number

of excellent hospitals scattered over the state that do support such services without the aid of a hospital "list." Even if this were not true, the doctors should not be misled by any economic argument in favor of the hospitals. The doctors should be interested in their own economic welfare; not the economic welfare of the hospitals. If a hospital can't make a go of it without chiseling in on the private practice of medicine, then that hospital should close its doors.

To argue for the welfare of the patient, which after all is our primary consideration, is to set forth, first, that list patients receive better care than private patients or, second, that private patients receive better care than list patients. If we assume that hospitals and doctors are honorable and ethical from the patient's standpoint, neither of the above declarations will hold water. The JOURNAL is willing to assume that hospital patients, whether list or private, get an even break. If that is true, then the argument for and against "list" hospital practice must limit itself to a question of economics. As we stated above, the private practitioner is interested in the economic welfare of himself and not the economic welfare of the hospital.

There are about 20 "list" hospitals in West Virginia. There are approximately 1200 doctors in the private practice of medicine. The hospitals are not licensed to practice medicine. The doctors are. We believe that when the individual practitioners become thoroughly aroused (and that is rapidly taking place) they will put an end to "list" practice once and for all time to come.

We realize, of course, that such a movement cannot be accomplished overnight. Hospitals that have been engaged in "list" practice for a number of years should be allowed a reasonable length of time to clean up their kitchens, if they want them clean.

If hospitals wish to maintain "lists" for hospital service only, that is their business. If they wish to bargain for such lists, that is still their business. But if they continue to maintain "lists" for medical service, that is the business of the medical profession. The "New Deal" is in the air.

ABOUT THE STATE DUES

In view of the fact that considerable comment has been heard regarding the finances and the dues of the West Virginia State Medical Association, we wish to call special attention to the President's Page in this issue by Dr. Roy Ben Miller. Dr. Miller covers the subject in a most able manner and his views are heartily endorsed by the JOURNAL.

A rough breakdown of the dues of each individual member will no doubt be of interest. Roughly speaking, the Association has 1,000 members in good standing. They each pay $10 per year dues which gives the Association an actual cash income of approximately $10,000 per year.

Breaking down the individual dues, $1 goes to the defense fund, $1 to the indigent fund, $2 for the JOURNAL subscription and $6 for the general fund. Breaking down the total income we have approximately $1,000 for the defense fund, $1,000 for the indigent fund, $2,000 for JOURNAL subscriptions and $6,000 for the general fund.

The defense fund is used for legal services only in cases that involve the entire profession of this state. For example, last year the Association spent $500 to get the now famous Sloan-Mitchell decision from the Supreme Court. We also spent $200 in a suit to restrain one of the coal companies from practicing corporate medicine.

The indigent fund is used only for the purpose of comforting the declining years of some of our life-long members who are now unable to practice and who are in dire financial straits. Mention of actual cases is rarely made because of the families involved.

While the income of the general fund is $6,000 a year, the annual budget of the Association is $8,000 per year. It would thus appear that the Association is operating at a loss of $2,000 per annum. However that is not the case because the JOURNAL does not use

its $2 assessment but returns it to the general fund. The reason the Journal does not use this assessment is because the Journal more than pays for itself on advertising alone. During the past seven years the Journal, in addition to turning back $2,000 per year into the general fund, has put away approximately $10,000 in government bonds which was made exclusively on advertising profit.

While the annual budget is $8,000, that amount has never been used up. The annual expenditures have always run from $500 to $1,000 under the budget estimate. The complete annual budget is as follows:

Salaries	$5,300.00
Maintenance	800.00
Travel Expense	300.00
Postage	300.00
Stationery	150.00
Legal	100.00
Legislative	100.00
Library	100.00
Supplies	200.00
Convention	400.00
Miscellaneous	250.00
TOTAL	$8,000.00

A word or two might be said about the items listed above. The budget for salaries includes all salaries paid by the Association. Maintenance includes office rent, telephone service, etc. Traveling expense includes not only the office of the Secretary but all the officers, councillors, committees and others who make occasional trips on official business for the Association. The remaining items are more or less self explanatory.

ILLEGITIMATE CHILDREN

In filling out birth certificates for illegitimate children, West Virginia doctors are cautioned not to insert the name of the male parent without his consent. Some years ago this practice was followed. The attending physician would secure the name of the father from the mother of an illegitimate child and insert the name on the birth certificate.

Dr. John F. Cadden, Director of the Bureau of Vital Statistics, stated recently that it was not necessary to include the name of the father on the birth certificate of an illegitimate child. He said that a doctor should not give the father's name without first securing his consent. The only departure from this rule, Dr. Cadden said, is in the event that the identity of the male parent has been established by court action. In that case it is not necessary to secure the consent of the father in placing his name on the certificate.

HONOR TO WYOMING

The Wyoming County Medical Society carried off the honor of being the first county society in the state to report its 1934 membership 100 percent paid up. Wyoming was one of the 100 percent societies last year. In addition to its regular membership, the Wyoming society has also turned in three new members since the beginning of the year. Dr. B. W. Steele and Dr. Ward Wylie, both of Mullens, are President and Secretary respectively of the Wyoming society.

Two other county societies that are nearing the 100 percent mark are Harrison and Summers. Both of these societies have each turned in one new member for 1934. Several county societies have not yet reported for 1934 and it is assumed that their secretaries are endeavoring to get in all their members before making a report. All reports should be in to the office of the Executive Secretary not later than April 1.

A total of 45 new members have been added to the Association roster since January 1. Many of these are former members who dropped out several years ago during the depression. Societies that have made unusual records in securing new members for 1934 are Kanawha with seven, Greenbrier Valley with four, Marshall with four, Mercer with four, Mingo with five and Raleigh with seven.

Due to postal regulations, this will be the last issue of the Journal sent to members unpaid for 1934. It is hoped that every member will send in his dues to his county secretary by the first of April.

COUNTY SOCIETY NEWS

BROOKE COUNTY

The regular meeting of the Brooke County Medical Society was held February 14, 1934 at the office of Dr. Ralph McGraw of Follansbee, W. Va., at which meeting Dr. B. A. Patten, a newcomer to Wellsburg was admitted to the Society.

Following the business meeting a very interesting and comprehensive paper was read by Dr. B. F. Harden on the timely subject "Pleurisy." A very lively and interesting discussion followed the reading of this paper.

At this meeting it was announced that for all subsequent meetings a paper will be given by a member of the society and then opened to discussion.

The meeting was adjourned to reconvene on the second Wednesday in March.

W. J. MACDONALD, *Secretary*.

FAYETTE COUNTY

The March meeting of the Fayette County Medical Society was held on the thirteenth at the Hill Hotel, Oak Hill. Two new members were received into the Society, Dr. L. I. Hoke, Layland, a transfer member from the Greenbrier Society and Dr. H. F. Troutman, Page, a transfer member from Wyoming County Society.

The following were appointed as delegates and alternates to the State meeting:

Drs. W. V. Wilkerson and H. C. Skaggs, Montgomery, delegates; Drs. Harry McGrath and G. A. Smith, Montgomery, alternates.

The essayist of the evening was Dr. R. K. Buford of Charleston, who read an interesting paper on Borderline Hyperthyroidism.

Dr. Revercomb of Charleston was a guest of the Society.

RALPH HOGSHEAD, *Secretary*.

MARION COUNTY

The regular monthly meeting of the Marion County Medical Society was held at the Fairmont Hotel, Fairmont, on the evening of February 27 with 25 members in attendance. The program consisted of a moving picture from the Lahey Clinic entitled "The Mechanism of Heart Beat and Electrocardiography." The film was obtained from the Worcester Film Corporation through Dr. A. H. Stevens.

G. H. TRAUGH, *Secretary*.

CABELL COUNTY

The Cabell County Medical Society held its regular monthly meeting at the Pritchard Hotel on the evening of March 8. A continuation of the program on malignancy was presented by Dr. R. J. Wilkinson and Dr. F. C. Hodges. Dr. Wilkinson discussed the clinical aspects and five-year end results of cancer of the breast. Dr. Hodges showed some slides of the pathological histology involved.

A Canti film showing the behavior of malignant cells in vitro was of interest.

The committee for the immunization program, headed by Dr. W. Byrd Hunter, reported four hundred inoculations since the beginning of this work. The Society has sponsored through newspaper publicity, paid advertisements and personal educational work in the schools and civic clubs, an active immunization program in an effort to check the incidence of diphtheria, scarlet fever, smallpox and typhoid.

The physicians of Cabell county have agreed to give inoculations in their offices during one hour of the week for one dollar each. For a while the materials were furnished by the state, but recently this has been discontinued. However the individual physicians have undertaken to furnish the inoculants themselves in an effort to further this highly meritorious program. The same low fee agreed upon at the stated hour will prevail.

The next meeting of the society will be given over to business matters in connection with being host to the West Virginia State Medical Association meeting in May.

EDWIN MATTHEWS, *Secretary*.

MONONGALIA COUNTY

The regular meeting of the Monongalia County Medical Society was held in the Green Room of the Hotel Morgan, Morgantown, on March 6 at 6 o'clock with a dinner. Following this the scientific meeting was called to order by Dr. B. M. Stout, President.

It was agreed by the Society to act as host to a tri-county meeting on May 1, at which time Dr. Beardsley of Philadelphia agreed to appear on the

program. All members of neighboring societies will be invited to this meeting.

Dr. G. R. Maxwell, President of the West Virginia Tuberculosis and Health Association, told of the early diagnosis campaign by the Association. With the approval of the local medical societies, it is planned to bring the mobile x-ray unit from the Powers X-ray Corporation to the principal cities of the state where x-rays on paper films will be taken of the children who show a positive mantox reaction. It was duly moved and carried that the society accept this offer.

A proposition to purchase oxygen therapy equipment with a part of the society funds was discussed by a number of the members present. A committee was authorized to investigate this possibility.

Dr. A. E. McClue of Charleston, State Health Commissioner, then spoke on "The Vaughan Immunization Plan." He gave a very brief but interesting talk on immunization. He said the Vaughan plan would not work in West Virginia because of lack of promotion funds. He suggested a modified plan which was discussed by Drs. Farrier, Spray, Pierce, C. H. Maxwell, Talbott and Edmondson. It was then moved and carried that Dr. Farrier be given authority to put on an extensive publicity campaign concerning the immunization campaign, the cost to be paid by the society.

G. R. Maxwell, *Secretary*.

TYLER-WETZEL

The regular meeting of the Tyler-Wetzel Medical Society was held Tuesday, March 13, at the War Memorial Building in New Martinsville. The orator of the evening was Dr. Roy Ben Miller of Parkersburg, our state president. Dr. Miller presented an interesting and instructive paper on "Certain Aspects of Medical Economics." A timely plea was made for straightforward and cohesive action to preserve the independence and individuality of the physician. Several methods of procedure for the medical care of the indigent were suggested.

Delegates to the State Convention appointed were Dr. G. M. Harsha and Dr. A. L. Coffield, with Dr. V. H. Dye and Dr. R. H. Leu as alternates.

Gene M. Harsha, *Secretary*.

MERCER COUNTY

There was a meeting of the Mercer County Medical Society on March 15, 1934, in the Memorial Building, Princeton, at 8:15 p. m.

Dr. H. G. Steele was appointed a committee of one to confer with old members and see what steps could be taken to get them back in the society.

Drs. T. E. Vass and D. L. Hosmer were appointed a program committee for the next three months.

Mr. Jess W. Easley, County C. W. A. Administrator, gave a talk on his work, expressing appreciation of the coöperation that he had received from the medical profession.

We then had the following papers: "Appendicitis in Children," Dr. H. R. Connell, Bluefield, W. Va.; "Acute Appendicitis (Surgery)," Dr. J. I. Markell, Princeton, W. Va. These papers were discussed by Drs. Hosmer, Vass and Rogers.

The meeting adjourned to the home of Dr. J. R. Vermillion, where we were served a delightful Dutch luncheon.

R. R. Stuart, *Secretary*.

LEWIS COUNTY

The regular monthly meeting of the Lewis County Medical Society was held at Weston State Hospital on February 13.

Following a discussion of the present schedule of fees for medical care of those on relief rolls, the society voted to coöperate with the local relief administration. A proposal for a diphtheria immunization program was tabled for discussion at the next meeting. Dr. Ralph M. Fisher was accepted as a new member.

The following program was presented: "Injection Treatment of Varicose Veins," by Dr. E. T. W. Hall. "Traumatic Rupture of the Small Intestine Without External Signs," by Dr. A. F. Lawson.

Both subjects were well presented and the discussion was interesting.

Theresa O. Snaith, *Secretary*.

KANAWHA MEDICAL SOCIETY

The March 13 meeting of the Kanawha Medical Society was featured by a Symposium on Syphilis from the Standpoint of the General Practitioner. Dr. J. U. Rohr presented a paper relating to Etiology, Pathology and Symptoms of Syphilis which was discussed by Dr. B. S. Preston. Dr. Thomas G. Reed presented a paper on "Diagnosis and Treatment of Syphilis," discussed by Dr. H. H. Howell.

Action was delayed on the constitutionality of "list" practice until the April meeting. Dr. O. M. Harper and Dr. C. B. Smith were admitted to membership.

The Secretary was instructed to send the following telegram to Senator M. M. Neely, "The Kanawha Medical Society approves the President's stand with reference to hospitalization of veterans and disapproves yours."

Sixty-eight members were in attendance at the meeting.

ANDREW AMICK, *Secretary.*

FASHIONS IN ANODYNES

"Civilized man is certain to use drugs of some kind," says the writer of an article in the *British Medical Journal,* "and it is extremely lucky that he is concentrating at present on such harmless ones." Whatever we may think of the proposition that drugs are necessary to heighten the enjoyment or relieve the tedium of civilization, it is gratifying to be told once again that those fashionable at the moment are moderately innocuous. A hundred years ago every person consumed on the average a pound each of tea and coffee during the course of a year. Today the consumption of tea has risen to nearly ten pounds a head, while that of coffee has fallen to three-quarters of a pound. More tobacco, too, is smoked—it has risen from under one pound a year for every person in 1830 to over three pounds today. Against this must be set the decline in the consumption of alcohol, which has dropped (reckoning in gallons of proof spirit) from nearly five gallons in 1875 to an average of two gallons today. There is no doubt that this shifting of the balance from alcohol to tea and tobacco involves a definite improvement in general social habits. This medical authority refuses also to join in the recurrent scares over the high tea and tobacco consumption. He mentions certainly that "the average consumption in cases of tobacco amblyopia (an eye complaint) is only three ounces a week" (not much more than the average national consumption) and also that an individual's daily cups of tea "contain about six grains of caffeine, which represents a full pharmacopoeial dose." But he also adds that the "great majority of civilized people" can take these drugs regularly throughout their adult life "without suffering any demonstrable injury."—*Manchester Guardian,* reprinted in *J. Michigan M. Soc.,* February, 1934.

GENERAL NEWS

THE HUNTINGTON PROGRAM

The general session program for the Huntington meeting on May 14-16, 1934, has been completed and turned over to the JOURNAL for publication. The Committee on Scientific Work has reserved the right to make further changes or alterations in the program if necessary. The complete outline follows:

Monday, May 14

Section on Pediatrics.

Section on Surgery.

Section on Internal Medicine.

Eye, Ear, Nose and Throat Section.

Tuesday, May 15

"Allergic Problems," by Dr. George M. Lyon, Huntington.

"Traumatic Lesions of the Spinal Cord and Their Treatment," by Dr. E. J. Browder, Brooklyn.

Oration on Surgery by Dr. James R. Bloss, Huntington.

"Abdominal Pain," by Dr. John W. Moore, Charleston.

Noon Intermission.

Symposium an "Acute Poliomyelitis" by Dr. W. J. Aycock and Dr. C. F. McKhann, Boston.

Wednesday, May 16

"Treatment of Benign and Malignant Lesions of the Stomach and Duodenum," by Dr. William B. Morrison, Columbus, Ohio.

"The Psychoneuroses," by Dr. A. L. Osterman, Wheeling.

"The Problem of the Cross-eyed Child," by Dr. Luther C. Peter, Philadelphia.

Oration on Medicine by Dr. G. R. Maxwell, Morgantown.

"The Study and Treatment of Chronic Arthritis," by Dr. Russell Haden, Chicago.

Noon Intermission.

"Medical Service—A Professional Service," by Dr. Olin West, Secretary of the American Medical Association, Chicago.

Dinner Dance.

The four sectional meetings will be held on the afternoon of May 14. Their respective programs follow:

Section on Internal Medicine:

"Agranulocytic Angina," by Dr. R. O. Rogers and Dr. M. W. Sinclair, Bluefield,

"Silicosis and Other Pulmonary Conditions Resulting from the Inhalation of Dust," by Dr. Albert E. Russell, U. S. Public Health Service, Knoxville, Tennessee.

"Common Non-Tuberculous Pulmonary Diseases," by Dr. C. E. Gwinn, Beckley.

"Important Mistakes in Cardiovascular Diagnosis," by Dr. Paul White, Boston.

"Pellagra," by Dr. W. H. Riheldaffer, Lost Creek.

Section on Surgery:

"Acute Appendicitis," by Dr. William R. Laird, Montgomery.

"Suprapubic Prostatectomy With Immediate Closure of Bladder," by Dr. H. H. Haynes, Clarksburg.

"X-ray Diagnosis of Intestinal Obstruction," by Dr. W. K. Kalbfleisch, Wheeling.

"Are We Too Conservative in the Treatment of Head Injuries," by Dr. E. J. Browder, Brooklyn.

Eye, Ear, Nose and Throat Section:

"Ocular Tuberculosis," by Dr. M. L. Dillon, Charleston.

Paper on Ear Conditions, by Dr. M. F. McCarthy, Cincinnati.

"Prognosis in Nasal Surgery," by Dr. Ivan Fawcett, Wheeling.

Section on Pediatrics:

"Studies in Immunity (Placental Extract)," by Dr. C. F. McKhann, Boston.

"Status of Personal Immunizations," by Dr. W. J. Aycock, Boston.

"Kanawha County Immunization Campaign," by Dr. M. F. Petersen, Charleston.

"School Health Programs in West Virginia," by Dr. R. C. Hood, Clarksburg.

Among the speakers listed in the general and sectional programs are the following:

Dr. Olin West is Secretary and General Manager of the American Medical Association.

Dr. McKhann is associate professor of pediatrics at Harvard and was formerly chief consultant of the Massachusetts Infantile Paralysis Commission.

Dr. Aycock is an expert in public health and headed the Massachusetts Infantile Paralysis Commission.

Dr. Albert E. Russell, of the United States Public Health Service, is Director of Health of the vast federal Tennessee Valley project with present headquarters at Knoxville. Dr. Russell, in 1930, was one of the two delegates from the United States to the International Silicosis Conference in Johannesburg, South Africa.

Dr. William B. Morrison of Columbus is the son of Dr. M. T. Morrison, Sutton, Councillor for the Third District.

Complete information concerning all essayists and the discussants of the various papers will be published in the May issue of the JOURNAL.

HEALTH RECOVERY CAMPAIGN

That people may not forget what public health does for them, a campaign has been organized by the national and state tuberculosis associations to begin throughout the country on April first under the slogan: "Tuberculosis Robs You, Public Health Protects You." The announced purposes of this campaign are:

1. To increase the general public's appreciation of the benefits it derives from good public health services with emphasis on the work and needs of the official health department.

2. To cause the public to demand adequate public health service.

3. To coördinate with the health department the efforts of medical societies, volunteer health agencies, civic organizations, clubs, public officials and influential citizens.

In this state the campaign is being organized and promoted by the West Virginia Tuberculosis and Health Association in coöperation with its fifty-one affiliated county organizations. In each county an effort is being made to organize special representative committees to sponsor and participate in the various activities of the campaign. Information regarding health conditions and health needs will be presented by selected speakers at meetings of many local organizations and suitable publicity is being prepared for magazines and newspapers.

Special literature will be available for distribution and attractive posters will be displayed. Lantern slides illustrating public health facts will be offered to theatres and other combinations of slides are available for lectures. A motion picture projecting a story of the life history of a tuberculosis germ in a serio-comic vein may be had in two sizes, one for theatres and one for use in narrow gauge projectors.

The National Tuberculosis Association is arranging for a number of radio programs during April over one of the broadcasting chains in con-

nection with the campaign. The programs will include short addresses by prominent physicians.

"Tuberculosis Abstracts" for April explains the relationship of the practicing physician to preventive medicine and advocates the use of the doctor's office as a health center based on the Detroit plan described last year by Dr. Henry F. Vaughan at the annual meeting of the State Medical Association.

A manual for county and community leaders explains in detail how the campaign should be organized and what activities should be promoted. One of the features of the manual is an appraisal form for making a community health survey. This affords an opportunity to record the existing health facilities and the needs of any community based on the ratios established by the American Public Health Association. Community surveys are suggested because only group understanding and responsibility can create the necessary favorable public opinion for providing the facilities and the services needed to safeguard the milk supply, the water supply and to protect children from communicable diseases such as diphtheria, measles and tuberculosis. By using the survey method the degree to which the public health work of any locality can meet its needs is not a matter of haphazard guess work. There are certain standards of safety set by health authorities, which can be applied to every community.

It is stated by Dr. G. R. Maxwell, president, that the West Virginia Tuberculosis and Health Association is particularly interested in this campaign because the tuberculosis problem is such that its control is responsive to every improvement in public health generally. Everything that is done to safeguard health, helps to reduce tuberculosis. The object of the campaign is to bring home to the individual citizen the value of the whole public health structure of the community, as well as to inform him as to special needs which should be met, if the depression is not to effect a depletion of our vital resources.

Outstanding facts of public health accomplishments are that—from 1911 to 1931 the average length of life in the United States increased seven years.

The infant death rate was only 58 per 1000 in 1932, but it was 170 in 1900.

The death rate of the four principal communicable diseases of childhood has been reduced 60 per cent in ten years.

In 1932 relatively only one-third as many people died of tuberculosis as in 1900.

And to accomplish that the taxpayers of the United States spent for public health through federal, state, city, and rural taxes an average of only 50 cents per capita per year.

But tuberculosis is still the greatest single cause of death among young people from 15 to 25 years. There are nearly 7,000,000 people in the United States today sick with tuberculosis and this disease is preventable. The tuberculosis problem alone is very expensive. The total estimated annual cost of tuberculosis is close to one billion dollars. In 1932 tuberculosis cost the U. S. government more than 46 million dollars for service-connected compensation of World War veterans afflicted with tuberculosis.

George R. Rowell, Executive Secretary W. Va. Tuberculosis and Health Association

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DR. CADDEN NEW REGISTRAR

The appointment of Dr. John Cadden as director of the division of vital statistics of the State Health Department was announced on February 1st, when he assumed his duties. Dr. Cadden, formerly director of the Boone County Full-time Health Department, succeeds Dr. Carl F. Raver, who resigned after serving as state vital statistician since 1919.

Under the public health laws of West Virginia the state registrar must be not only a competent vital statistician but also a qualified physician since the work of this office is so closely associated with the medical profession. Dr. Cadden qualified in every way for this very responsible position. Only recently he returned from a visit to several adjoining states where he studied the operations of their division of vital statistics.

Dr. Raver, who resigned, has been associated with the State Health Department since 1919, when he came to West Virginia from Illinois. Very shortly after he took office Dr. Raver set about to bring up-to-date the West Virginia provisions for securing and compiling all records of births and deaths, which at that time were very antiquated and inadequate. He was instrumental in securing the passage of West Virginia's modern vital statistic law and for the admission of the state into the U. S. Registration Area in 1925. Since that time every state, with the possible exception of one, has been admitted to the Registration Area, indicating that at least 90 percent of all births and deaths are recorded with the State Health Department.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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PRIMARY HYPOCHROMIC ANEMIA (HYPOFERRISM) III.

A Comparison of Certain Compounds of Iron (Including Ferrous Glutamate and Ferrous Chloride) in the Treatment of Hypochromic Anemia*

By WILLIAM DAMESHEK, M. D.
Boston, Mass.

In recent years interest has developed in certain cases of "secondary" anemia in which no definitely demonstrable cause was discernible. These cases were usually discovered in adult women, who complained of weakness, dyspnea, and gastro-intestinal disorders and were found to have a rather marked reduction in hemoglobin content, the red blood cell count being but slightly affected. Because of the striking pallor, glossitis, and the almost constant presence of achlorhydria, pernicious anemia was at times incorrectly diagnosed. Continued study of these cases has shown that they present certain well-defined clinical features which have been cited in previous papers [1, 2] and which may be repeated here:

Symptoms: Weakness, dyspnea, gastro-intestinal complaints, sore tongue, paresthesias, weight loss.

Signs: Pallor without icterus; wrinkled, atrophied, inelastic skin; glossitis; brittle, often spooned, fingernails; dry, gray hair.

Blood: Anemia of low color index; hypochromia of the red blood cells; small average red blood cell diameter; leukopenia, and reduction in blood platelets.

Gastric Juice: Achlorhydria, usually complete; small volumes; increased mucus.

Response to Medication: Prompt and striking response to large doses of inorganic iron; small doses of copper sulphate of benefit when the anemia becomes "fixed".

The disease represents in all probability a chronic deficiency in iron. Indeed, one of its most striking features is the marked response to iron medication. In recent years the necessity of giving large, even massive doses of iron in the "secondary" or hypochromic anemias has been emphasized. The preparations most commonly used in this country have been ferric and ammonium citrate, reduced iron, and the pills of ferrous carbonate (Blaud's). The latter medication, so commonly used in the past, has to some extent

*From the Research Division, Boston State Hospital and the Tufts College Medical School; the Medical Service and Department of Pathology, Beth Israel Hospital; and the Medical Clinic, Boston Dispensary. Part of the expense of this investigation was defrayed by a grant from the Calco Chemical Company, Inc., Bound Brook, N. J. Read before the Kanawha Medical Society, Charleston, on March 27, 1934.

been displaced in favor of the other preparations. Recently, the use of ferrous rather than ferric compounds of iron has been advocated. (3, 4, 5, 6, 7, 8, 9, 10, 11).

Despite many statements regarding the relative values of various compounds of iron, but few critical analyses have appeared in the literature. It was therefore thought advisable to compare the therapeutic effects of several types of iron compounds, including a representative ferrous compound (ferrous chloride) and a compound of iron with an amino acid-ferrous glutamate. The data obtained and their analysis form the subject of this paper.

Methods and Material: Sixty-five patients were utilized in this study. Forty-seven of these patients were diagnosed as "primary hypochromic anemia", presenting the various clinical features cited above. Blood loss was not a factor in these cases. Thirteen patients

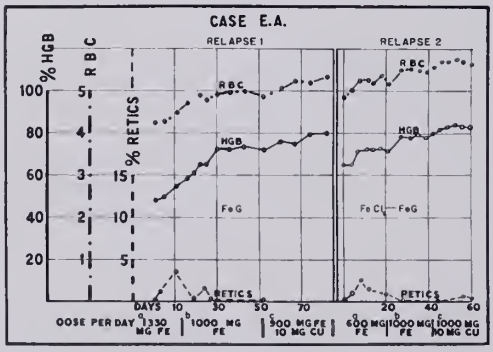

CHART I

E. A. Primary hypochromic anemia, treated in two relapses. In the first relapse, ferrous glutamate was given. A slight secondary response in reticulocytes occurred when the dosage of available iron was tripled. A definite secondary rise in hemoglobin and red blood cell count occurred when copper glutamate was added to the dosage of ferrous glutamate. In the second relapse, the molecular combination of ferrous chloride-ferrous glutamate was used with substantially the same results.

presented a chronic hypochromic anemia due probably to blood loss in the past, although no recent blood loss had been demonstrable. These patients had probably reacted inadequately to hemorrhage (from hemorrhoids, duodenal ulcer or from the nose) and had developed a chronic or "fixed" hypochromic anemia. Objectively, they resembled in many ways the typical instance of primary hypochromic anemia; achlorhydria was, however, not usually present. Five patients with senility, achlorhydria, and hypochromic anemia were also utilized. Cases of acute hemorrhage and of continued chronic blood loss were excluded because it was felt that the factor of spontaneous recovery would be difficult to evaluate. The anemias secondary to known infections, and to toxic, malignant, and neph-

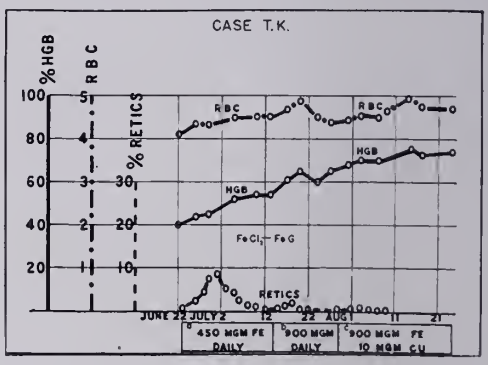

CHART II

T. K. Primary hypochromic anemia. This patient was given the combination of ferrous chloride-ferrous glutamate (a) in a dosage of 450 mgs. of available iron daily (b) in a dosage of 900 mgs. daily (c) in a dosage of 900 mgs. of available iron with added copper glutamate. There is definite reticulocyte response and rise in hemoglobin in period (a); a secondary response, particularly in hemoglobin occurs in period (b); a possible response in hemoglobin and red blood cell count when a small dose of copper was added.

ritic processes, were also not utilized in this study. The group of patients studied was therefore a fairly simple and homogeneous one, the outstanding features being a chronic hypochromic anemia (low color index, hypochromia of the red blood cells). About forty additional patients without anemia were utilized in testing the gastro-intestinal reactions to the various drugs, chiefly ferrous glutamate and ferrous chloride.

The following drugs were used: Ferric-ammonium-citrate, reduced iron, ferrous glutamate, ferrous chloride, and a molecular combination of ferrous chloride and ferrous glutamate. In addition, two patients were given large amounts of beef blood by mouth.

Ferric-ammonium-citrate is a brown, crystalline, highly deliquescent, very soluble, "scale" salt, containing 17.2% available iron. It was usually prescribed in 25% aqueous

solution (1 gram per dram dose) and given in doses of 3 to 8 grams daily, ordinarily diluted with milk.* Each gram of the salt contains 172 mg. of available metallic iron.

Reduced iron is a heavy, grayish-brown insoluble powder, containing 90-100% of iron. It was prescribed in the form of 1 gm. capsules, containing 900-1000 mg. of actual iron. Three to six capsules daily were ordinarily prescribed.

Ferrous glutamate is a salt of glutamic acid in which the iron is in the ferrous state. Glutamic acid is an amino acid having the formula $C^5H^9O^4N$ or CH (NH^2)COOH-CH^2-CH^2 COOH. Ferrous glutamate is a light brown, fine amorphous powder which is moderately soluble in water. It contains approximately 12.0% of iron, and is completely copper-free. It was prescribed in measured 3.0 gm. doses (containing approximately 360 mg. available iron) 1 to 6 doses being given daily, usually in tomato juice, milk, etc., but later chiefly in capsules to conceal the taste.

Ferrous chloride is a light brown powder readily soluble in water, containing 44% of available iron. It was prescribed in 0.5 gm. capsules (220 mg. available iron) in doses of 5-8 capsules daily.

The molecular combination of *ferrous chloride—ferrous glutamate* which contained approximately equal parts of ferrous chloride and ferrous glutamate representing about 22% iron, was prescribed in 0.45 and 0.6 g. capsules (100-170 mg. available iron) 3-10 capsules being given daily. Finally chocolate-coated tablets containing 350 mg. ferrous glutamate-chloride (70 mgs. available iron) were administered.

The patients were carefully studied from various standpoints. The percentage of hemoglobin was estimated by the Sahli method using apparatus calibrated against the Van Slyke-Neill method for determining the oxygen capacity of the blood. The Sahli standard of 100% hemoglobin equivalent to 15.4 gm. of hemoglobin was used. Red blood cell and white blood cell counts were determined in the ordinary way, Bureau of Standard pipettes being used in the work at the Boston State Hospital. In studies at the latter institution and in ward patients at the Beth Israel Hospital, daily reticulocyte counts were made, the "wet" method of Dameshek [12] being used. Counts of the blood platelets were frequently made simultaneously with those of the reticulocytes, utilizing the same method. Blood smears stained with Wright's stain were examined at frequent intervals. Gastric analysis was performed on all but a few of the patients. Either histamine 0.5-0.7 mg. was injected subcutaneously as the primary procedure, or an alcohol meal (7% 50 cc. of alcohol) was given, followed by histamine in the presence of achlorhydria. Several experiments were performed in which the effect of an iron preparation upon the secretion of free hydrochloric acid was determined. Various clinical features such as reaction to medication, taste of preparation, etc., were carefully observed.

RESULTS:

1. *Taste and Gastro-Intestinal Reaction to the Iron Preparations.*

It is frequently necessary to consider the patient's views regarding the taste of a certain drug. Ferric-ammonium-citrate has an unpleasantly astringent taste when taken in water, although this is moderately well masked in milk. Only a few patients were encountered who were unable or disinclined to take this drug when given in milk. Discoloration of the teeth takes place unless a glass "straw" is used in sipping a solution of the drug. Reduced iron was never given except in capsules so that its taste was not a factor. Ferrous glutamate was found to have an unpleasant metallic taste. Mixed with orange juice, sarsaparilla, etc., this taste was slightly masked, but there was frequently a disagreeable after-taste. It was finally given in capsules, either alone or in combination with ferrous chloride. The latter drug is ex-

*This drug is also administered in the form of crystals, a teaspoonful dose being equivalent to about 2 gms. This method of administration, depending upon an approximate measurement by the patient, was not utilized. Capsules containing 0.5 gm. (7½ grains) were also used.

tremely unpleasant to the taste, whether given in water, milk or other liquid, and it was found necessary to dispense it in capsules.

It is important to consider the gastro-intestinal reaction to the various preparations, since vomiting will prevent the actual consumption of the drug, and diarrhea its absorption. In addition, gastric distress and nausea may make a patient so uncomfortable as to cause him to "forget" many doses of medication. The symptom of nausea may be caused not only by the actual irritant action of the drug on the gastric mucosa but also by the patient's aversion to it. The latter was apparently the case, at times, with both ferric-ammonium-citrate and ferrous glutamate.

Nausea, distress and vomiting, probably due to gastric irritation, occurred with ferric-ammonium-citrate, reduced iron and ferrous chloride—in greatest degree with ferrous chloride, in least degree with reduced iron.

Approximately one-third of all patients treated with ferric-ammonium-citrate com-

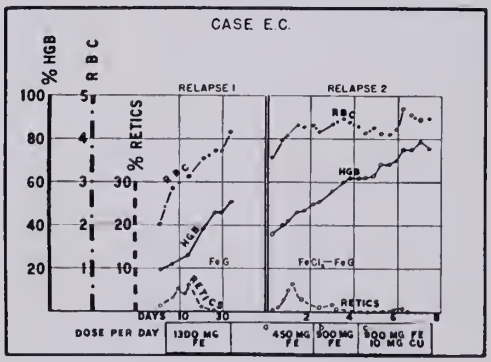

CHART III

E. C. Chronic "fixed" post-hemorrhagic anemia, relapsing in character. In the first relapse, she was given ferrous glutamate in large dosage with resultant response in reticulocytes, hemoglobin, and red blood cell count. In the second relapse, the combination of ferrous chloride-ferrous glutamate was used (a) in an available iron dosage of 450 mgs; (b) in a dosage of 900 mgs. and (c) with added copper glutamate. There appears to be a definite secondary rise in hemoglobin and red blood cell count following the addition of copper.

plained of these symptoms, particularly when large doses (4-8 gm.) were given. When this occurred, the dosage was diminished to 0.5 gm. (½ dram of the 25% solution) twice daily and gradually increased to 4-8 gm. daily, usually without further development of symptoms. Three of the five patients given ferrous chloride vomited shortly after the medication was given. Reduced iron, which was ordinarily given in 1.0 gm. capsules, caused gastric distress, belching, at times nausea and vomiting in about 25% of

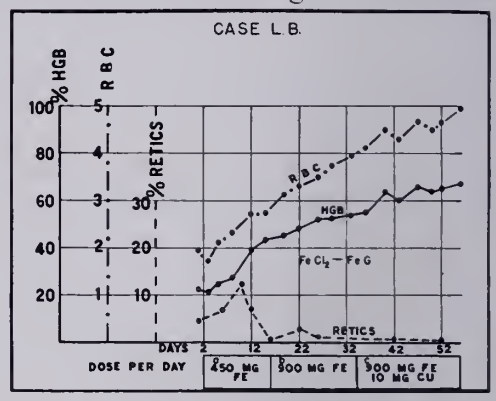

CHART IV

L. B. Chronic fixed hypochromic anemia following hemorrhage. This patient was given the combination of ferrous chloride-ferrous glutamate (a) in a dosage of 450 mgs. of available iron; (b) in a dosage of 900 mgs. of iron; (c) with added copper glutamate. A slight secondary rise in reticulocytes took place when the larger dosage of iron was used and there was a definite secondary rise in hemoglobin and erythrocyte count when a small dose of copper was added.

the patients to whom is was given. The patients given ferrous glutamate in capsules did not complain of either nausea, vomiting or distress. Of twenty-three patients given capsules of ferrous chloride-ferrous glutamate in large dosage (500-1000 mgs. of available iron), five developed various degrees of gastric distress, although vomiting did not occur. Diarrhea was encountered in 38% of the cases treated with ferric-ammonium-citrate. When the dosage was diminished and then gradually increased, diarrhea did not ordinarily recur. It was thought that the ammonium citrate content of the drug was the chief factor in the causation of this symptom. Diarrhea occurred in about 20% of the patients given reduced iron, and in 15% of those given ferrous glutamate - ferrous chloride. No gastro-intestinal reactions were encountered in the few patients given chocolate coated pills, usually 12 tablets per day, of the ferrous glutamate-ferrous chloride compound.

2. *Reticulocytes.*

The presence of large numbers of immature erythrocytes in the peripheral blood during conditions of intense bone-marrow regeneration has been well substantiated, and is utilized as an index of response to medication in the treatment of pernicious anemia. That the percentage of reticulocytes becomes increased following treatment with iron in the hypochromic anemias is not so generally known although it has been noted by several observers. Minot and Heath [33] present careful studies of this phenomenon. Most of the cases treated with ferric-ammonium-citrate and all the cases treated with ferrous glutamate, ferrous chloride, and ferrous glutamate-ferrous chloride were studied for daily reticulocyte percentages. Reduced iron was not studied in this fashion.

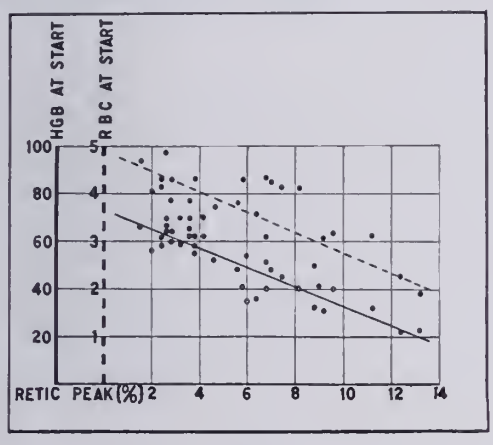

CHART V

Correlation of peak reticulocyte percentage with the initial hemoglobin percentage and initial erythrocyte count. The black dots represent individual red blood cell counts. the dots with white centers represent individual hemoglobin estimations. Note that the highest reticulocyte percentages are obtained with the lowest readings of hemoglobin and red blood cells. The average reticulocyte counts for the varying hemoglobin readings (solid line) and red blood counts (dotted line) are indicated.

The percentage of reticulocytes usually began to increase on the second or third day, the peak of reticulocyte response usually occurring on the seventh to tenth day. As noted by Minot and Heath, [33] the reticulocyte "peaks" frequently tended to recur for several days, giving the curve a more flattened appearance than that seen in pernicious anemia following effective therapy. The maximum percentage of reticulocytes obtained varied (1) with the extent in diminution of hemoglobin and (2) with the dosage of iron given. The highest reticulocyte counts were obtained in those patients who, presenting very low hemoglobin readings, were given maximal doses of an iron preparation. It was noted that if an inadequate dosage of an iron preparation was first given, followed by a later larger dosage, a secondary rise in reticulocytes took place. The following approximate peaks of reticulocyte percentages were found at the varying levels of hemoglobin studied.

Hemoglobin	Reticulocytes
20%	10-15%
30-40%	5-10%
50%	4- 8%
60%	2- 4%
70%	1- 2%

As a rule, at the end of 14-20 days, the reticulocytes had assumed a normal level (0-0.3%).

3. *Hemoglobin.*

Usually there was definite rise in percentage of hemoglobin within one week after institution of treatment. In certain cases definite rise did not occur until the second week. The rapidity of rise in hemoglobin depended upon (1) the extent in diminution of hemoglobin before treatment; (2) the dosage of iron given; (3) the type of preparation used; and (4) the individual patient. With an optimal dosage in a patient whose hemoglobin was at a relatively low level (20-40%) there was usually an average weekly rise in hemoglobin of at least 7%—a daily rise of about 1%. In general, the higher the initial level of hemoglobin percentage, the less striking was the daily rise in hemoglobin. The weekly rise in hemoglobin was usually greatest during the first three weeks of treatment, gradually becoming diminished as more normal levels were reached. Ordinarily, at the end of sixty days, the hemoglobin percentage was at about normal limits (80%), irrespective of the initial level of hemoglobin.

In order to obtain maximal, well-sustained rises in hemoglobin, it was necessary to supply adequate daily doses of iron. By using first small, then large doses of iron, it was found that the optimal dosage of ferric-ammonium-citrate was at least 3 gm., 6 gm. being ordinarily necessary. The dosage of 6 gm. of ferric-ammonium-citrate corresponds to 1,000 mg. of available iron. The optimal dosage of ferrous glutamate and of the combination of ferrous glutamate and ferrous chloride was found to be about 1,000 mg. of available iron. In the case of reduced iron, however, it was necessary to give at least 3,000 mg. of available iron (3 gm.) in order to obtain an effect comparable with that of ferric-ammonium citrate or ferrous glutamate. The optimal dosage of ferrous chloride could not be worked out although in the two patients who took the drug and retained it, a dose of 660 mgs. of available iron was satisfactory.

The accompanying table compares the average daily rise in hemoglobin percentage, and average daily dosage in available iron for the various preparations used. Because of the variations in the average initial hemoglobin percentages for the different preparations used, these have all been correlated to an arbitrary level of 43% (the average initial percentage of hemoglobin in the ferric-ammonium-citrate series).

	Average Daily Rise in Hemoglobin (%)	Optimal Dosage (mgs. of iron)
Reduced Iron (12 cases)	0.65	3000
Ferrous Glutamate - Ferrous Chloride (10 cases)	0.77	900
Ferrous Glutamate (17 cases)	0.84	1000
Ferric Ammonium Citrate (22 cases)	0.84	1000

It may be noted that the average daily rise in percentage of hemoglobin with ferrous glutamate and with the combination of ferrous glutamate and ferrous chloride is closely comparable to that with ferric-ammonium-citrate. There is a distinctly lessened effect, however, with reduced iron.

Although most cases responded satisfactorily to iron therapy given in large dosage, it was found that a number of cases were apparently refractory. Occasionally, it was necessary to double the already large dose of iron. In about 25% of the cases the hemoglobin remained "fixed" at a level between 50-60% despite the administration of large doses of iron. This was ordinarily remedied, as noted in my previous communications, [1, 2] by adding to the regular iron dosage small amounts of copper sulphate (0.005 gm. t. i. d.) or cuprous glutamate. If, however, copper was added and iron discontinued, there was no continued rise in hemoglobin. Experimentation with copper is still being carried on, so that no definite statement can as yet be made regarding the efficiency of small doses of copper added to suboptimal doses of iron.

With rise in hemoglobin percentage, the color index gradually increased, finally reaching unity in some cases. When the percentage of hemoglobin reached normal figures, the dosage of iron was ordinarily reduced to about one-third or one-sixth of its original amount. This dosage was ordinarily found sufficient to maintain the patient at a constant level of hemoglobin. If the dosage of iron was entirely discontinued, the percentage of hemoglobin gradually became diminished. This was particularly true of the patients with primary hypochromic anemia in whom, as is noted above, there is marked tendency to relapse.

4. *Red Blood Cells.*

In the hypochromic anemias, the red blood cell count is relatively but slightly affected, the percentage of hemoglobin however being strikingly diminished. For this reason, treatment with iron presents no such striking effect upon the red blood cells as it does on the percentage of hemoglobin. In general, however, the rise in red blood cells is definite and parallels the rise in percentage of hemoglobin. The rapidity of rise depends to a great extent upon the original level of the

erythrocyte count. A good average daily rise in red blood cells is 40,000 per cu. mm., (1,200,000 red blood cells in 30 days).

The red blood cells showed, during treatment with iron, gradual diminution in achromia with parallel diminution in the extent of poikilocytosis and anisocytosis. The number of polychromatophilic cells always became increased* and stippled cells were commonly seen. Large, well-filled red blood cells were usually seen during the first two weeks of treatment. These helped materially to raise the average diameter of the red blood cells from an abnormally small one (usually 6.0 to 6.4 micra) before treatment was started to a normal level (7.5 micra) when treatment was well instituted.

5. *White Blood Cells and Blood Platelets.*

In previous papers I have pointed out that most cases of primary hypochromic anemia are associated with leukopenia (usually 4000 to 5000 per cu. mm.) which is due to an absolute diminution in polymorphonuclear cells. Following successful treatment with iron, the white blood cells usually increased, the rise being due to an increase in polymorphonuclear cells. During this rise, the percentage of immature polymorphonuclear cells ("band" forms) frequently became increased up to 10%.

The blood platelets became markedly increased during treatment with iron. In one case showing petechiae and a very low blood platelet count (40,000 per cu. mm.) the platelet count rose following treatment with ferric-ammonium-citrate to more than 1.0 million per cu. mm. The platelet count and the reticulocytes usually became increased in parallel fashion.

6. *Clinical Effects.*

The striking clinical effects following treatment with large doses of iron have already been noted in my previous papers. [1, 2] Approximately four to seven days after institution of iron therapy, the patient usually develops a marked appetite, and begins to feel stronger. With continuance of iron treatment, striking improvement may be noted from week to week. The symptoms of weakness, fatigue, dyspnea, palpitation, anorexia, dysphagia, etc., gradually disappear. Along with these symptoms, the objective signs of pallor, smooth tongue, brittle spooned finger nails, dry skin, etc., gradually diminish. The most striking findings are noted in the tongue which gradually develops a coat and new papillæ. The latter at times regenerate in islands. The brittle, flattened, spooned finger nails improve more slowly; within six months, possibly a year, they regain their normal lustre, lose their brittleness, and become normally rounded. The skin becomes less wrinkled and more firm and the hair more lustrous. There is usually marked gain in weight, one patient increasing in weight from 121 to 162 pounds in a period of six months.

DISCUSSION:

1. *Primary Hypochromic Anemia an Iron Deficiency State (Hypoferrism).*

Several writers notably Heath, Strauss and Castle, [13] Mettier and Minot, [14] Alt, [15] and myself [1, 2] have suggested that primary hypochromic anemia probably represents a state of chronic iron deficiency. This is evidenced by the striking response both hematologically and clinically to adequate iron therapy and by the quantitative increase in hemoglobin to parenteral therapy as shown by Heath, Strauss and Castle [13]. I have already suggested [2] that the dry, gray hair; the wrinkled, flabby skin; the smooth, atrophied tongue; the brittle, spooned finger nails may be "trophic" disturbances dependent upon diminished oxidative processes within the body cells. This speculation is based upon the fundamental researches of Warburg [16] who demonstrated the importance of minute quantities of iron, acting as "respiratory catalysts" within all body cells.

The state of chronic iron deficiency is probably manifested not only by the marked diminution in hemoglobin and the hypochromia of the red blood cells (hypochromic anemia) but by the various clinical features

*The polychromatophilic red blood cells in the Wright's stained preparations are identical with the reticulocytes in the supravitally stained brilliant cresyl blue preparations.

which I have emphasized. This state of "hypoferrism" may be "primary" or idiopathic associated with achlorhydria and occurring for unknown cause in many middle-aged women. By analogy with pernicious anemia, it is possible that primary hypochromic anemia may fundamentally be due to improper digestion or absorption of iron from a defective gastro-intestinal tract. An experiment suggesting this was reported in a previous paper [2]. The deficiency in iron may be dependent wholly or in part upon an inability of the gastro-intestinal tract to digest or absorb organic iron, although there are certain contributory factors which are often present. Thus, an iron-poor diet of years' standing; pregnancy, which probably depletes the mother's iron store; dysphagia, which prevents the swallowing of meat and green vegetables; gastrectomy and gastro-enterostomy; myxedema with its accompanying achlorhydria; etc. have all been shown to be factors in the development of this type of anemia[2]. Chronic slight blood loss (catamenial, from hemorrhoids, etc.) together with the lack of normal regenerative activity on the part of the bone-marrow may also give the same type of picture. The nutritional or milk anemia of infants is in all probability dependent upon an insufficient intake of iron-containing foods. The almost defunct chlorosis may also represent a state of iron deficiency. All of these conditions respond quickly and dramatically to adequate doses of iron, and their recognition is, therefore, important.

2. *Necessity of Large Dosage.*

The observation that large doses of iron are necessary in the treatment of hypochromic anemias has now become almost commonplace. It is largely through recognition of this fact that the importance of the iron compounds in therapy has recently become greatly increased. Meulengracht, [17] one of the first clinicians in recent years to use large doses of iron, credits Lichtenstein [18] with the reintroduction of the principle of large dosage, which had been forgotten for almost a century since the time of Blaud. Schulten [19] in Germany, Goodall[20] and Witts[21] in England, Minot and Castle[22] and Giffin and Watkins [23] in the United States are chiefly responsible for the use of large doses of iron in their respective countries.

It is probable that much of the iron taken by mouth is excreted by the gastro-intestinal tract. However, a surprisingly large amount is utilized as Heath [24] has recently demonstrated. This author showed that the percentage of utilization is usually much greater at the beginning of treatment (averaging 11.8%) than for the entire duration of treatment (average 3.4%). With such a large amount of iron excreted, it might appear reasonable that smaller doses of iron would be quite effective. In actual practice this has not been demonstrated. Relatively small doses, although occasionally effective, usually make no impression on the anemia. A large dose of iron may be compared to a large "head of pressure" which must be sufficient to reach a given point with a given force. An overdosage of iron is apparently necessary in order to supply the nucleated red blood cells of the bone-marrow with sufficient iron for an effective response. To obtain maximal results in the great majority of patients, it is necessary to give optimal doses which are ordinarily quite large. This has been shown by (1) the uniformity of good results with the use of large doses; (2) the ineffectiveness of small doses except in occasional instances; and (3) secondary rises in reticulocytes and hemoglobin when large doses of iron were given after a preliminary period with a relatively small dose. Because of the possibility of gastro-intestinal disturbance, the precaution should be taken, however, of starting at a relatively small dosage, increasing this rapidly to the maximal effective dosage.

In discussing iron dosage, it is necessary to speak of the actual amount of iron given since the various preparations differ so markedly in their iron content. In order to obtain an *adequate* response in *most* cases (a rise of about 1% of hemoglobin daily in about 75%

of the cases), it was found essential to give 1000 mgs. of iron in the form of ferric-ammonium-citrate (6 gms.); 1000 mgs. in the form of ferrous glutamate (10.5 gms.); about 900 mgs. in the form of ferrous glutamate-ferrous chloride; and 3000 mgs. in the form of reduced iron (3.0 gms.). In the few cases treated with ferrous chloride, a somewhat smaller dosage of available iron was given with satisfactory response. Pills of ferrous carbonate (Blaud's) were not used in this study. Since each pill of 5 grains (0.3 gm.) contains only 50 mgs. of actual iron it is probably necessary to give at least 10 pills (500 mgs. of iron) and possibly 20 pills in order to obtain an adequate response.

3. *The Physico-Chemical Differences in Iron Preparations.*

Various reasons have been cited for the difference in efficacy of the many iron preparations. Among these may be mentioned (1) differences in solubility; (2) difference between ferrous and ferric iron; and (3) difference between organic and inorganic iron.

Various authors have stated that the more soluble an iron preparation is, the more effective it is in therapy. (Bauer[4]; Morawitz[25]; Doan, Sabin and Forkner[26]). The experimental work of Mitchell and Schmidt[27] bears this out. The order of solubility of the various drugs used in this investigation was as follows:

Ferric-ammonium-citrate
Ferrous Chloride
Ferrous Chloride-Ferrous Glutamate
Ferrous Glutamate
Reduced Iron.

It is seen that ferric-ammonium-citrate and ferrous chloride are the most soluble, the least soluble being reduced iron. No detectable differences in efficacy could be seen with the first four preparations used, although there was definite lessening of efficiency when the insoluble preparation, reduced iron, was used. As noted above, 3000 mg. of iron given in the form of the latter drug was somewhat less effective than 1000 mg. of iron given in the form of either ferric-ammonium-citrate or ferrous glutamate. Because of its high iron content (90-100%), however, the actual dosage of reduced iron given is smaller than that of the other drugs.

Starkenstein[5] and Reimann and Fritsch[7] have been the chief exponents for the greater therapeutic value of *ferrous* rather than *ferric* preparations of iron. Starkenstein's conclusions are based chiefly on experimental pharmacological data in which ferric iron and ferrous iron (ferrous chloride) were given to animals and their organs later analyzed for iron content after death. Reimann and Fritsch in clinical experiments, found that 100 mg. of iron in the form of a ferrous compound (ferrous chloride) was as effective as large doses of reduced iron containing 3000 to 5000 mg. of iron. These authors also used the following ferric compounds of iron in their investigations: solution of ferric chloride, saccharated ferric oxide, ferric albuminate, magnetic ferric oxide of iron, and ferric sodium citrate. Strangely enough, they failed to obtain any but questionable results with these drugs, although their results with ferrous chloride were striking. This is contrary to the experience of various American clinicians who have demonstrated striking results with the use of the *ferric* compound, ferric-ammonium-citrate. In this investigation, the therapeutic effect of the ferrous compounds used and that of ferric-ammonium-citrate was closely comparable.

Much discussion took place in former years regarding the difference in efficacy between organic and inorganic iron. Bunge[28], who espoused the cause of organic iron in the treatment of chlorosis, regarded the preparations of inorganic iron as not only of no value but harmful to the body. This view has been completely revolutionized since the demonstration that large doses of inorganic iron are effective therapeutically and without toxic manifestations. Elvehjem[29] has recently demonstrated that organic iron in the form of hematin is less effective (in rat anemia) than inorganic iron in the form of ferric chloride. In two cases of primary hypo-

chromic anemia, I used large doses (three to four glasses) of whole beef blood with an available iron content of about 500 mgs. In one of these cases, the response both in reticulocytes and in daily rise of hemoglobin was entirely adequate. In the other case, there was but little response, which was, however, quite as good as the response to massive doses of ferric-ammonium-citrate. It is entirely possible that the failure of response to the preparations of organic iron cited in the literature has been due to the small amount of actual iron given rather than to its organic state.

To recapitulate: (1) soluble preparations of iron appear to have a greater efficacy than insoluble preparations; (2) in this rather small series of cases, ferric and ferrous compounds of iron appeared to be equally effective; and (3) organic compounds of iron are probably as effective as inorganic providing a large enough dosage of available iron is given. In effective therapy with iron, it is the actual quantity of available iron which is important.

4. *The Expected Rise in Hemoglobin.*

Given an adequate daily dosage of a potent preparation of iron in a case of hypochromic anemia, the expected daily rise in hemoglobin may be said to depend upon the following factors: (1) the initial level of hemoglobin; (2) the type of hypochromic anemia; (3) the presence or absence of achlorhydria; (4) the individual patient; (5) the complicating presence of infection. The most rapid gains in hemoglobin are seen in those cases with the lowest readings, particularly when the hypochromic anemia is of the "primary" type, i.e., in which there is a chronic iron deficiency of unknown cause. Studies of the bone-marrow at biopsy in three cases demonstrated that despite the striking anemia, the marrow was hyperplastic and contained enormous numbers of nucleated red blood cells (normo-and erythroblasts)[1]. This I have likened to the appearance of the marrow in pernicious anemia, in which there is also striking hyperplasia of red blood cell forming elements, which is however of the embryonic type (megaloblastic). It is thus possible that in primary hypochromic anemia there is faulty maturation of the normal type of nucleated red blood cell as the result of a deficiency in iron. The striking response to iron medication in these cases may be due to the effect of supplying a necessary substance to cells already present in large numbers and which are ready to maturate when supplied with the necessary hemoglobin-building substance.

Achlorhydria is present in almost all cases of primary hypochromic anemia. It is possible that this results in diminished absorption of iron from iron-containing foods. It is not certain whether the presence of achlorhydria diminishes the effectiveness of the preparations of inorganic iron. Mettier and Minot[14] and Minot and Heath[33] cite evidence indicating that there is some lessening in the therapeutic efficiency of iron compounds in the presence of achlorhydria. However, it must be admitted that some of the most striking instances of response to iron therapy have taken place in cases of primary hypochromic anemia in which complete achlorhydria was present. The individual factor is extremely important and should constantly be emphasized. Certain patients are refractory to treatment and must be given doses which are two or three times as great as the average dose.

Infection, as in the treatment of pernicious anemia, definitely halts the expected rise in hemoglobin. Carcinoma and chronic nephritis also inhibit rise in hemoglobin.

In calculating the expected daily rise in hemoglobin percentage, it should be remembered that the rise is most rapid during the first few weeks of treatment, gradually becoming diminished as more normal percentages of hemoglobin are reached. Obviously, the percentage of daily rise calculated over the entire period is usually smaller than is the percentage of daily rise during the first few weeks. This is lost sight of in some of the literature on the subject which apparently deals with the response during the first few weeks of treatment. In a certain number of cases, although the percentage of daily

hemoglobin rise is small, it continues steadily at the same level so that the end-result in sixty days is approximately the same as in other cases in which the percentage of daily rise is at first quite striking.

It may be said, therefore, that given an optimal dosage of an iron preparation in a suitable case of hypochromic anemia, the percentage of hemoglobin will usually increase from 0.3 to 1.5% daily, the average figure being about 0.8% when the hemoglobin percentage is 43. Heath's[24] figures are somewhat higher: about 1.5% daily rise when the initial hemoglobin was 20%, about 1.3% at hemoglobin 43%. It must be noted, however, that Heath's cases were arbitrarily selected, cases showing less than 1% rise of hemoglobin per day being excluded. Within sixty days after the beginning of treatment, it may be expected that most cases of hypochromic anemia, irrespective of the initial level, will have reached a normal percentage of hemoglobin (80-100%).

5. *Comparison of the Iron Compounds Used.*

From the above data and comments, it is possible to compare the various compounds of iron utilized in this investigation. This is done in Table VII which lists physico-chemical differences, optimal dosages, and the clinical and hematological reactions. These have already been discussed above. It is seen from this table that (1) ferric-ammonium-citrate, although quite active therapeutically, is frequently associated with gastro-intestinal reactions; (2) ferrous glutamate, although quite active therapeutically, requires, on account of its rather low content of available iron, a large dosage and is furthermore extremely unpalatable; (3) reduced iron is less active therapeutically in comparable doses of actual iron than any of the other iron preparations used. The actual dosage in bulk, however, is relatively small and the gastro-intestinal reactions are relatively few in number; (4) ferrous chloride causes marked gastro-intestinal reactions, without gain in therapeutic efficiency; (5) the combination of ferrous chloride and ferrous glutamate, being high in content of available iron, requires relatively small bulk of dosage. It is therapeutically active, and provokes but few gastro-intestinal symptoms.

Since ferrous glutamate has heretofore not been used clinically, and since the use of ferrous chloride in the treatment of anemia has been almost entirely confined to Central Europe, it is advisable to discuss these drugs in somewhat greater detail. As noted above, ferrous glutamate is a compound of iron with glutamic acid—one of the "acid" amino acids containing two carboxyl (COOH) groups ($CH(NH^2)COOH.CH^2.CH^2COOH$). Drabkin and Miller[31] found that the experimentally produced milk anemia of rats was benefited only by the addition of certain "stroma-building materials" to the iron ration. They found that glutamic acid was one of the amino acids effective in hemoglobin production. Various metallic compounds of glutamic acid were later synthesized and their potency investigated in experimental anemia. Brand and Stucky[32] found that ferrous glutamate and ferric chloride were equally effective in treating the milk anemia of rats. They also observed that the anemia of a specially selected group of rats born of mothers who had been on a low protein, low cystine diet, responded much more effectively to glutamic acid when it was added to the iron ration than to iron alone. The results of the investigations reported in this paper demonstrate that ferrous glutamate given in optimal dosage in the chronic hypochromic anemia of adults has as great a therapeutic effect as the more simple inorganic compounds. However, despite its glutamic acid content and the ferrous state of its iron component, ferrous glutamate was, in this small series, found to have no greater therapeutic effect than the more simple ferric compound—ferric-ammonium-citrate.

It should be noted that ferrous glutamate employed in this investigation was entirely copper-free. Despite this fact, relatively as many cases responded maximally to this drug

as to ferric-ammonium-citrate and reduced iron. About one case in four which proved refractory to optimal dosage of ferrous glutamate was given in addition small doses of copper sulphate or copper glutamate, whereupon the rise in hemoglobin again became sustained. This corresponded to experience with both ferric-ammonium-citrate and reduced iron. That maximal responses occurred in 75% of the cases treated with ferrous glutamate helps to invalidate the conclusions of various investigators, particularly Elvehjem[30], who have stated that the maximal responses obtained with preparations of iron were due, not to the iron preparation alone but to the small amounts of copper present as impurities. As a matter of fact, the copper present in the common iron compounds is frequently infinitesmal in amount and is often absent. The need for copper in

TABLE I.—RETICULOCYTES

	Hemoglobin at start of treatment %	Red Blood Cells at start of treatment	Peak Reticulocyte Count (%)	Day of peak Reticulocyte count	Preparation Used*
E. C. (1)	22	2.26	12.4	10	FeG
J. B.	23	1.89	13.2	8	$FeCl^2$-FeG
S. J.	31	3.04	9.2	11	$FeCl^2$
E. A. (1)	32	3.10	11.2	7	$FeNH^4C$
A. H.	32	2.50	8.8	12	FeG
L. M.	32	2.06	9.0	8	Whole Blood
L. D.	32	3.40	5.4	7	Whole Blood
B. S.	35	2.70	6.0	7	$FeNH^4C$
E. C. (3)	36	3.59	6.4	8	$FeCl^2$-FeG
H. H.	40	3.17	9.6	5	$FeNH^4C$
F. K.	40	4.16	8.1	8	$FeCl^2$-FeG
C. S.	40	3.10	6.8	11	FeG
E. C. (2)	41	4.30	5.8	9	$FeCl^2$-FeG
E. C.	45	4.14	7.5	10	FeG
W. Mc.	48	3.80	5.6	7	FeG
E. A. (2)	48	4.21	7.0	11	FeG
G. I.	51	4.36	6.8	8	FeG
A. L.	52	3.79	4.6	8	$FeCl^2$-FeG
E. A.	55	4.31	3.8	12	FeG
Ellen C.	55	4.41	2.0	8	$FeCl^2$-FeG
M. R.	56	4.02	2.0	9	FeG
A. S.	58	4.24	2.4	9	FeG
J. M.	58	3.08	3.8	7	FeG
F. S.	59	3.52	3.2	9	FeG
A. C.	60	3.49	3.6	14	FeG
J. D.	60	4.24	2.8	9	FeG
A. M.	61	3.21	3.6	16	FeG
W. Mc.	61	3.85	3.6	7	FeG
T. F.	64	3.50	2.6	5	FeG
A. G.	62	3.45	4.1	8	$FeCl^2$-FeG
C. S.	62	4.17	2.4	8	$FeCl^2$-FeG
S. K.	64	3.85	2.8	8	$FeCl^2$
E. A. (3)	65	4.86	2.6	9	$FeCl^2$-FeG
S. W.	66	4.70	1.5	12	$FeCl^2$-FeG

*FeG—ferrous glutamate.
$FeCl_2$-FeG—Ferrous chloride-ferrous glutamate
$FeNH_4C$—ferric-ammonium-citrate.

the hypochromic anemias of man is probably far less than that for the secondary or milk anemias of rats. The frequent comment that copper is an essential factor in the composition of any product used for the treatment of secondary or hypochromic anemia is probably based on insufficient study of clinical material and on too hasty a carrying-over of data derived from rats to the anemias of man.

Ferrous chloride, a highly soluble compound of "ferrous" iron, has recently been used in Europe principally in Germany, ("Ferrostabil", "Ferrochlorid") in the treatment of hypochromic anemia. The pharmacological investigations of Starkenstein[5] and the clinical investigations of Reimann and Fritsch[7] did much to popularize the use of this drug. Its therapeutic efficiency is probably dependent not only on its marked solubility but on its very high iron content (44%). Reimann and Fritsch, as noted above, emphasized the importance of the ferrous ion and the small quantities of available iron which are necessary when ferrous chloride is used (100 mgs. of available iron, about 0.25 gm. of ferrous chloride daily). The irritant qualities of ferrous chloride were not mentioned by the above investigators, although they were noted in the present study. Very few gastro-intestinal reactions were encountered when ferrous chloride was "buffered" with an equal amount of ferrous glutamate, which had been found non-irritating. This mixture, later combined in loose molecular combination, was found, as noted above, to be at least as effective as ferric-ammonium-citrate in comparable dosage of available iron.

TABLE II.—FERRIC AND AMMONIUM CITRATE (22 cases)

No.	Initials	Type of Case*	Hemoglobin at start of treatment %	Hemoglobin at end of treatment %	Period of treatment (days)	Daily rise in hemoglobin (%) total period	Daily dosage (mgms. of available iron)
1a	H. H.	P.H.A.	15	40	15	1.7	500
2	A. W.	P.H.A.	22	62	40	1.0	1000
3	A. C.	A.P.H.	29	60	20	1.5	1000
4	A. H.	P.H.A.	30	68	95	0.4	750
5	H. L. B.	P.H.A.	30	90	60	1.0	860
6	E. A.	P.H.A.	32	62	30	1.1	500
7	J. W.	A.P.H.	38	82	25	1.8	1350
8	L. D.	P.H.A.	39	48	10	0.9	1350
9	C. J.	A.P.H.	40	65	24	1.0	1000
10	P. D.	A.P.H.	40	96	83	0.7	1000
1b	H. H.	P.H.A.	40	88	65	0.7	1000
11	B. S.	P.H.A.	41	60	48	0.4	1000
12a	M. C.	P.H.A.	45	58	32	0.3	500
13	R. O. M.	P.H.A.	45	76	26	1.2	1000
14	M. M.	P.H.A.	45	70	48	0.5	500
15	K. N.	P.H.A.	45	96	120	0.4	350
16	C. McC.	P.H.A.	50	72	21	1.0	1350
17	C. M.	A.P.H.	55	74	24	0.8	1000
18	O. D.	P.H.A.	57	84	33	0.8	500
12b	M. C.	P.H.A.	58	68	7	1.4	500
19	D. H.	P.H.A.	58	68	14	0.7	620
20	L. D.	P.H.A.	58	68	30	0.3	1000
21	F. McD.	P.H.A.	58	68	35	0.3	1000
22	B. A.	P.H.A.	60	85	101	0.3	350

*P. H. A.—Primary hypochromic anemia.
A. P. H.—Chronic fixed hypochromic anemia, following hemorrhage.

SUMMARY:

1. Sixty-five patients with chronic hypochromic anemia (chronic iron deficiency, "hypoferrism") were studied from the basis of their comparative response to various compounds of iron. Forty-seven of these patients had "primary" or idiopathic hypochromic anemia; thirteen had a "fixed" anemia following previous hemorrhage. Cases with recent hemorrhage, infection, malignancy, and nephritis were excluded.

2. The following compounds of iron were studied: ferric-ammonium-citrate, reduced iron, ferrous glutamate, ferrous chloride, a combination of ferrous glutamate and ferrous chloride, and hemoglobin. Fer-

TABLE III—REDUCED IRON (12 cases)

Case No.	Initials	Type of Case*	Hemoglobin at start of treatment %	Hemoglobin at end of treatment %	Period of treatment (days)	Daily rise in hemoglobin (%) total period	Daily dosage (mgms. of available iron)
23	J. C.	P.H.A.	33	86	62	0.9	6000
24	H. H.	P.H.A.	41	90	55	0.7	3000
25	M. L.	P.H.A.	41	84	94	0.4	4000
26	C. R.	A.P.H.	42	89	82	0.6	3000
27	J. W.	P.H.A.	46	64	35	0.5	3000
28	B. S.	P.H.A.	50	66	27	0.6	3000
29	M. S.	P.H.A.	52	89	65	0.6	4000
30	M. C.	P.H.A.	52	71	90	0.2	3000
31	C. H.	P.H.A.	54	85	30	1.0	1500
32	S. K.	P.H.A.	54	88	110	0.3	6000
33	L. McD.	P.H.A.	60	80	82	0.4	3000
34	A. H.	A.P.H.	64	90	55	0.5	3000

*P.H.A.—Primary hypochromic anemia.
A.P.H.—Chronic fixed hypochromic anemia, following hemorrhage.

TABLE IV—FERROUS GLUTAMATE (17 cases)

Case No.	Initials	Type of Case*	Hemoglobin at start of treatment %	Hemoglobin at end of treatment %	Period of treatment (days)	Daily rise in hemoglobin (%) total period	Daily dosage (mgms. of available iron)
35	E. C.	A.P.H.	22	51	17	1.7	1350
36	A. H.	P.H.A.	32	65	28	1.3	1000
37	C. S.	P.H.A.	40	66	26	1.0	1000
38	E. C.	P.H.A.	45	63	41	0.4	1000
39	E. A.	P.H.A.	48	72	37	0.7	1000
40	W. McC.	Arterio-sclerotic anemia.	48	73	32	0.8	1000
41	G. I.	A.P.H.	51	78	38	0.7	1350
42	M. G.	P.H.A.	51	62	22	0.4	1000
43	M. R.	P.H.A.	56	82	34	0.9	1350
44	A. S.	P.H.A.	58	73	27	0.6	1000
45	J. M.	A.P.H.	58	76	44	0.6	1000
46	F. S.	P.H.A.	59	74	31	0.5	1000
47	A. C.	P.H.A.	60	75	21	0.7	2000
48	J. D.	arterio-sclerosis	60	79	24	0.7	1000
49	W. McG.	arterio-sclerosis	61	78	47	0.5	1000
50	A. M.	P.H.A.	61	75	21	0.7	2000
51	T. F.	arterio-sclerosis	64	80	30	0.6	1000

*P.H.A.—Primary hypochromic anemia.
A.P.H.—Chronic fixed hypochromic anemia, following hemorrhage.

rous glutamate is a recently synthesized compound of a simple amino acid—glutamic acid—with iron. In our work, it was copper-free.

3. The factors of taste, gastro-intestinal disturbances, reticulocyte response, hemoglobin and red blood cell rise, optimal dosage, and physico-chemical differences in the iron compounds were studied.

4. Ferrous glutamate tasted most poorly; ferrous chloride caused the most marked gastric disturbances and ferric-ammonium-citrate caused diarrhea in about 33% of the

TABLE V—FERROUS GLUTAMATE-FERROUS CHLORIDE (10 cases)

Case No.	Initials	Type of Case**	Hemoglobin at start of treatment %	Hemoglobin at end of treatment %	Period of treatment (days)	Daily rise in hemoglobin (%) total period	Daily dosage (mgms. of available (iron)*
52	J. B.	A.P.H.	23	63	38	1.1	450-900
53	E. C. (2)	A.P.H.	36	79	67	0.6	450-900
54	T. K.	P.H.A.	40	77	52	0.7	450-900
55	E. C. (1)	P.H.A.	41	73	41	0.8	450-900
56	A. L.	P.H.A.	52	79	49	0.7	450-900
57	E. C. (3)	A.P.H.	55	67	57	0.3	450-900
58	S. C.	Arterio-sclerotic anemia	62	79	21	0.8	450-900
59	A. G.	A.P.H.	62	80	30	0.6	450-900
60	E. A.	P.H.A.	65	82	46	0.4	450-900
61	S. W.	A.P.H.	66	81	25	0.6	600

*The first figures represent initial, the second figures, final dosage.
**P.H.A.—Primary hypochromic anemia.
A.P.H.—Chronic fixed hypochromic anemia, following hemorrhage.

TABLE VI—MISCELLANEOUS DRUGS

Case No.	Initials	Drug	Type of Case	Hemoglobin at start of treatment %	Hemoglobin at end of treatment %	Period of treatment (days)	Daily rise in hemoglobin (%) total period	Daily dosage (mgms. of available iron)
62	S. J.	Ferrous Chloride	P.H.A.	31	71	40	1.0	660
63	S. K.	Ferrous Chloride	P.H.A.	64	82	38	0.3	660
64	L. McD.	Hemoglobin	P.H.A.	32	60	21	1.3	500
65	L. D.	Hemoglobin	P.H.A.	32	39	20	0.3	500

TABLE VII

Drug	Solubility (mgs. per 100 cc.)	Ferrous or Ferric	Percent of available iron	Optimal Dose (grams)	Available iron in optimal dose (mgs.)	Taste	Distress Nausea etc. (% of cases)	Diarrhea (% of cases)	Peak of Reticulocytes at hemoglobin percentage of 20-40	Average % Daily rise in hemoglobin (corrected to level of 43%)
Ferric and Ammonium Citrate (22 cases)	40	Ferric	17.2	6.0	1000	poor	15-20	38	6-12	0.84
Ferrous Glutamate (17 cases)	21	Ferrous	12.0	10.5	1000	poor	occasionally	none	7-12	0.84
Reduced Iron (12 cases)	Insoluble	—	90-100	3.0	3000	poor	occasionally	about 15		0.65
Ferrous Chloride-Ferrous Glutamate (10 cases)	25	Ferrous	22.0	4.0	1000	poor	occasionally	none	6-13	0.77
Ferrous Chloride (2 cases)	30	Ferrous	44.0	1.5	666 (?)	poor	60	none	11 (one case)	

cases. Reduced iron and the combination of ferrous glutamate-ferrous chloride caused the fewest gastro-intestinal disturbances.

5. The reticulocyte response varied directly with the initial level of hemoglobin and the dosage of available iron. The type of iron preparation was not a determinant in the reticulocyte response.

6. The daily hemoglobin rise when the initial hemoglobin averaged 43%, averaged about 0.8% with ferric-ammonium-citrate, ferrous glutamate, and the combination of ferrous glutamate-ferrous chloride. The daily rise was definitely less with reduced iron. In about 25% of the cases, irrespective of the drug used, it was necessary to add small amounts of copper when the hemoglobin level became "fixed". This procedure always caused a further increase in hemoglobin.

7. The optimal dosage of ferric-ammonium-citrate, ferrous glutamate, and the combination of ferrous glutamate-ferrous chloride is about 1000 mgs. of available iron (6 gms. of ferric-ammonium-citrate; 10.5 gms. of ferrous glutamate, 4.0 gms. of the above combination). The optimal dosage for reduced iron is definitely greater, at least 3000 mgs. (3.0 gm.) being necessary for effective response.

CONCLUSIONS

1. The activity of an iron compound depends in greatest degree upon its available iron content and upon its solubility. Reduced iron, which is insoluble, must be given in very large dosage (3 to 6 gm.) for maximal effect.

2. To obtain maximal effects, in most cases, it is necessary to give large, even massive, doses of iron, averaging about 1000 mgs. (+ 100 mgs.) daily of available iron whether in the form of ferric-ammonium-citrate, ferrous glutamate, or the combination of ferrous glutamate and ferrous chloride.

3. A daily hemoglobin rise of 0.7 to 1% is satisfactory. Treatment for two months with an optimal dosage of iron will (in 75% of the cases) bring the percentage of hemoglobin, at whatever initial level, to about 80. About 25% of the cases are refractory but respond to the addition of small doses of copper to the iron medication.

4. Ferrous glutamate, both alone and in combination with ferrous chloride, is as effective as ferric-ammonium-citrate; and, given in capsules or in pills in combination with ferrous chloride, is more soluble and causes less gastro-intestinal disturbance.

5. The fact that ferrous glutamate, which is copper-free, produced maximal responses in 75% of the cases in which it was given, demonstrates that copper is usually not an essential factor for hemoglobin synthesis in the hypochromic anemias of adult man.

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SCARLET FEVER*

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My chief interest in this subject is directed toward its prevention and treatment, so I will dwell only briefly on the subheads commonly used in describing a clinical entity. I will also preface my remarks with the statement that all I will say is gleaned from the best authors I could find and therefore is in no wise original.

Until recently scarlet fever has been defined as an acute communicable disease characterized by sudden onset with fever, sore throat, vomiting and a generalized punctate eruption followed by desquamation. Now we can add to that, "caused by the specific streptococcus scarlatinae." The enormous amount of work done on the so-called scarlatinal streptococci group need not be discussed here, other than to say that Dick finally produced a specific serum from the specific organism which will specifically cure the disease.

This infection is well known throughout the world, is endemic in all large cities, is epidemic in our temperate zone. It is less readily communicable than any of the other common infectious diseases, far less than half of those individuals exposed, even at the most susceptible age (1 to 6) contract it. It is spread chiefly by direct contact with secretions of nose and throat of the patients and may be contracted during the entire illness from this source. The "scales" from a desquamating patient are contagious only if they are contaminated by body secretions. Milk must be mentioned as a source in certain epidemics where an infected employee has been planting his germs in this excellent culture medium.

This disease would not merit so much attention were it not for the frequent complications which follow it. These occur in at least 40% of all cases and are, more often than not, quite serious. As a reminder, here are the complications that may occur: membranous tonsillitis, adenitis, otitis media, mastoiditis, purulent rhinitis, vaginitis, albuminuria, acute nephritis, arthritis, heart

*Read before the Kanawha Medical Society, Charleston, on February 13, 1934.

lesions, endocarditis, bronchopneumonia, pleurisy with effusion, and cancrum oris—or noma. This is indeed a formidable array as compared with most of the infectious diseases.

Another point to remember is that any one or more of the common infectious diseases may develop in the course of scarlet fever, the most common being diphtheria. It may be present from the beginning of the scarlet fever or develop during the course of the disease. In such an event, each augments the other and the prognosis is correspondingly grave. The occurrence of a membrane in the throat or of a persistent muco-purulent nasal discharge should call for a culture for diphtheria and prompt treatment given when positive. Measles is a serious complication also and is frequently followed by fatal pneumonia.

I would like to call your attention to a statement made by all authors I reviewed—that is, do not be misled by what you consider a mild case of scarlet fever. These men stress the fact that many times these mild cases suddenly become malignant, and even if they do not do so, are still the source of complications. For this reason, mild cases should get full respect and just as thorough treatment as the severe cases.

I am sure you will gladly give me permission to skip over the symptomatology, pathology, etc., and begin on the material now at hand for diagnosing, preventing and treating scarlet fever. You will doubtless remember many cases of acute sore throat with attendant rash and have wondered whether you had a mild scarlet fever or just one of the many "strep" throats so common to our valley. A positive test to clear this up is done by using the scarlet fever streptococcus antitoxin—in other words, the Schultz-Charlton diagnostic blanching test. This material is dispensed in a five-test vial. It is simply done by giving .2 c.c. intradermally where the rash is most pronounced. Twelve to eighteen hours later, in a case of scarlet fever—the rash will have faded, showing an area of normal skin from one to several inches in diameter and this blanching usually persists throughout the course of the rash.

Next we have the scarlet fever streptococcus toxin—the Dick test. This is a definitely positive test in well persons as to their susceptibility to scarlet fever. It too is given intradermally—using 1 c.c., and comes in a small vial of ten tests. It is a well established test and the percent of positives varies with the age. The older the individual, with more chances of exposure to scarlet fever, the less frequent are the positive tests. Those who have had scarlet fever in the past show a very small percent of positives. In the first few days of active scarlet fever the test is positive, becoming negative as antibodies appear in the system. The reading of this test is done in 20 to 24 hours after injection. If positive, you have an area of reddening, no matter how faint, 1 cm. or more in any diameter. If diameter is less than 1 cm., it is considered negative. If the reddening has completely faded out in 24 hours, it is considered negative.

By means of this simple test, school children, hospital staffs and other large groups have been absolutely protected from epidemics as soon as all positive reactors were rendered negative by the immunization with toxoid.

As in diphtheria, scarlet fever serum is put out in two sizes—one a prophylactic dose and one for active treatment. The prophylactic dose is 2,000 units and is only for individuals exposed to scarlet fever and does not give long immunity. The therapeutic dose is put out in a 6,000 unit package but dosage is best judged according to tables furnished which take into account the number of days since onset and the severity of the infection.

The units I mention are the U. S. Hygienic Laboratory standard and you will find each package of serum with this dosage and the corresponding unit, the skin test dose or neutralizing unit, also printed. One unit of U. S. Hygienic Laboratory standard equals 50 S. T. D. units. This serum has been used extensively and favorable effects have been

noted by practically all workers. If you will read Hunt's review of the study of 2,303 cases from 1924-1931, you will be very much impressed. This appeared in the November 4, issue of the Journal of the A.M.A. last year.

If you make an early diagnosis and give an adequate amount of serum promptly, favorable effects will be noted on the severity of the febrile course and its duration, on the intensity and duration of the skin lesions and on the occurrence of complications. The serum must be given early to be effective. If given after the fourth day of the rash, little improvement is noted. If given early, the punctate rash will fade in 12 to 24 hours with corresponding marked general improvement as the toxicosis disappears. If complications are present at this time, they become unmasked; if no complications are present, their subsequent occurrence is greatly reduced. In Hunt's long series, only two deaths occurred when antitoxin was given before the third day, as against 25 deaths among untreated patients.

Serum reactions occur, but not more frequently than from any other serum, as that for tetanus, diphtheria, pneumonia, etc. In Hunt's series, 22.7% showed serum sickness. The frequency of this reaction depends on individual susceptibility, previous serum administration, toxicity of serum and to the greatest extent on the amount of serum injected. Previous serum administration is very important in any patient and any case who is to receive this serum should be desensitized. Especial care is to be used in this respect if the serum is given intravenously.

In uncomplicated cases, the dosage varies from 6,000 to 12,000 units in children and 6,000 to 16,000 in adults, according to severity of the case. If complications are present, the dose is almost double, being 12,000 to 24,000 in children and 12,000 to 30,000 in adults, according to severity of the case. Although it is probably of little if any value if given after the 7th day, a dose of from 6,000 to 16,000 is advised.

The serum is given intramuscularly as a rule, and one adequate dose is preferable to smaller repeated doses. In very severe cases serum may well be given by both intravenous and intramuscular routes.

In closing, I would like you to bear in mind the proven worth of these various aides in scarlet fever, the diagnostic blanching test, the susceptibility test, the immunizing toxoid, the specific serum which if given in the first four days of the rash will cure your patient in 24 hours in the great majority of cases and will cut down the percentage of complications materially. The fact that the serum was for some time in disrepute is probably due to the variety of concerns manufacturing it without adequate supervision. It is a very potent serum and its dilution must be very exact to be effective.

By courtesy of Dr. Roy Bird Cook, I have brought here one item of each of the biologicals I have mentioned, with the price of each, in case anyone of you is not familiar with them, and I urge their use.

When the outstanding men in infectious diseases throughout the country come out with a definite endorsement of these things, we are surely not to deprive our patients of the benefits of the enormous labor put into their perfection.

SCIENCE AND RESEARCH

Dr. Walter V. MacGilvra, a dental surgeon of the Harvard University Dental School, announces a means of quickly reversing the deep unconsciousness caused by ether and other anesthetics. Miss Pearl L. Moorman, a nurse technician, supervisor of the city's public health department and Freeman Hospital, Joplin, Mo., is the discoverer of palinesthetic, reversing anesthesia. The Harvard scientists have demonstrated the effectiveness of this new medical method, after reading an account by Miss Moorman of the success of the method in restoring laboratory animals that were near death from anesthesia. The method, which consists of injecting a weak solution of hydrochloric acid into the veins of the patient, has been used successfully on eight human patients, each time with striking results. * * —*Pennsylvania Medical Journal.*

SCARLET FEVER IMMUNIZATION WITH A SCARLET FEVER TOXOID*

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SCARLET fever, probably in existence for centuries, was first described as a distinct clinical entity, by Sydenham, in the 17th century. Since that period, numerous workers have given us a comprehensive knowledge of the disease, with its complications and methods of treatment. However, the problem of prevention, while being aided in its solution by various outstanding achievements, is yet far from a satisfactory goal of actual prevention.

A brief resume of research work shows that the difficulty in progress in prophylaxis has been the uncertainty of the actual causative agent of scarlet fever. Fifty years ago, it was demonstrated by Loeffler, that a streptococcus was present in the throat and blood of scarlet fever patients, but not until 1903, when methods of differentiating the streptococci were developed, was it known that the streptococcus in question was of a hemolytic type. In 1907, the Russian Gabrichevski was using a vaccine of killed cultures from scarlet fever patients, but the work was abandoned because there was no proof that the hemolytic streptococcus was the causative agent of scarlet fever alone and it was apparent that the same type of organism was also present in various other disease conditions.

Dochez, in 1919, finally established the existence of a specific organism, streptococcus scarlatinæ, and produced the disease experimentally in animals. The Dicks proved the same organism in scarlet fever in man, and devised methods for immunization and tests for susceptibility.

While the use of scarlet fever toxin in prophylaxis, as recommended by Doctors Dick and Dick, has undoubtedly been the means of preventing scarlet fever, there have been persistent efforts to detoxify the toxin, and yet have a reliable preventive agent. Larson and Colby, in 1926, showed that detoxification with sodium ricinoleate did not destroy the immunizing effect; several European investigators, working along the same line, with various detoxifying agents, proved the same conditions, but due to technical difficulties, have not been able to prepare a satisfactory product. With some, the preparations gave unfavorable reactions; with others, there was a considerable loss of immunizing power in the detoxification process. Due to these uncertainties, not much progress has been reported of a standardized, effective product.

In this paper, I wish to present another effort, that has been made, to prepare an efficient, yet safe, detoxified scarlet fever toxin, with clinical proof of its worth. This product, known as scarlet fever toxoid, has been prepared by Veldee, of the United States Public Health Service, and it has been my good fortune to have been allowed to use the toxoid, in conjunction with Veldee's research concentrating my observations chiefly upon reactions presented by the toxoid.

The preparation of the toxoid is not a new idea, being scarlet fever toxin detoxified by the use of formalin, in addition to prolonged storage at 37 C. However, previous efforts have apparently stopped there, with the admission that such a product has its possibilities, but no complete work has been carried on from that point. This toxoid under discussion has been prepared as a standardized immunizing agent; it has had a clinical test, and has been proven to be effective by the usual tests employed in determining the efficacy of such products.

There are, of course, a large number of

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strains of the streptococcus but only one, the NY-5 strain, was used in this work, for the reasons that it produced a higher concentration of toxin, and the antigen obtained from it apparently neutralized a wider range of streptococcus toxins, than any other strain.

I do not wish to give full details of the process of preparing the toxoid, but there are three essential steps.

First, there is the culture of the streptococcus, for 72 hours, at 37 C., in a tryptic digest broth.

Second, concentration of the toxin with acetone (acetic acid was formerly used with the acetone, but the acid destroys much of the antigenic value). The resulting concentrated toxin has about four times the strength, but the same nitrogen content, as the commercial unconcentrated toxins.

Third, the addition of 0.4 per cent formalin, and storage at 37 C. for 56 to 88 days, dependent upon the time required to give a maximum reduction of the skin-reacting factor, possible to only 99.5 per cent, as it was impossible to eliminate all of the skin-reacting factor. The antigenic strength is tested by the rabbit-ear method, and the toxoid under discussion was found to have the equivalent of 80,000 STD of raw toxin per cubic centimeter. This compares with 175,000 STD for the original raw concentrated toxin from which it was made. The usual commercial unconcentrated toxin varies from 45,000 to 60,000 STD.

For active immunization, it was found that a total of 1.6 cubic centimeters, divided into 0.1, 0.5 and 1.0 cubic centimeters of the toxoid at intervals of three weeks, gave maximum immunization with minimum reaction. (The same amount divided into two monthly doses, gave rather marked reactions). In my series of 255 individuals, there was the following age grouping:

Pre-school (1 to 6 years)	28
School (6 to 14 years)	191
(Included 18 colored.)	
Adult (14 years up)	36

Age limits were from one to 44 years.

Of the 28 children under six years, there were no noticeable systemic reactions; locally, there was a slight erythema, but practically no induration.

In the school group of 191 children, practically all had a reddened area, from 1½ to 2 inches in diameter. In some of the cases, there was a painful induration, but in all cases smaller than the reddened area. Incidentally, the color in the erythematous areas was a deep red, in contrast to the skin manifestations of scarlet fever itself. Out of the 191, there were only five with systemic reactions; these consisted mainly of headache, fever and nausea; one had slight sore throat. In one boy of ten years, there was marked dizziness and weakness after the first two injections; this reaction was of short duration, with no bad after-effects.

In the adult group, 10 of the 36 developed rather marked reactions, the reaction being in direct proportion to age. Two men of 37 and 44 years, respectively, were confined to bed for one day with chills and generalized muscular pains.

As scarlet fever immunization is centered with the younger individuals, it will be seen that, up to 14 years, there were only five reactions for 219 children, slightly over two per cent.

In general, I found that the average reaction was less than that for typhoid immunization, and except for more local reaction, comparable to similar protection for diphtheria. The second dose of 0.5 cubic centimeters seemed to give more reaction in most cases.

At the time the inoculations were being done, there were, or had been recently, about fifteen cases of scarlet fever in the community. It was observed that there were no other cases after the immunization work was started. While this may have been only a coincidence, it suggests a rapid immunity, similar to that which has been observed with scarlet fever toxin.

Of my group of 255 persons, due to unavoidable circumstances, it was not possible

to give later Dick tests, but of a total of 1700 receiving the toxoid, Veldee has reported results of Dick tests on 1168, one month after inoculation. Eighty-three and two-tenths per cent were Dick negative. A second test was made on 494 (of this group of 494 available for the second test, 87.3 per cent had been negative before); the time varied from 4 to 29 months after inoculation, with an average of eight months; 87.0 per cent were negative at this time. It was also found that some of the positives of the first test were negative later, after receiving further doses of the toxoid. A peculiar fact was noted, in that tuberculous children, or those with mumps or acute respiratory infections, produced a much smaller percentage of Dick negatives.

With commercial scarlet fever toxin, a tabulated comparison shows that with the five recommended doses, at weekly intervals, there is a somewhat smaller number rendered negative, probably about 81 per cent. However, it has been the experience of several of us that the use of scarlet fever toxin is at times disappointing, and in recent observations from various physicians, I have noted that there is a loss of confidence in results obtained from its use. In addition, some rather severe reactions have been noted with toxin. The time element for receiving all of the immunizing doses is slightly longer, of course, with the toxoid, but the number of injections is lessened from five to three.

It must be admitted that there is much work yet to be done with this toxoid. As mentioned before, it was prepared from only one strain of the streptococcus; this strain causes an estimated 80% of scarlet fever. Further work on other strains should be carried on, with the possibility of preparing a mixed antigen, for there is no doubt that part of our scarlet fever cases are caused by strains, other than the one used in this research.

In conclusion, it seems that we have an agent for prevention of scarlet fever, favorable in comparison with the prophylactic effects of the toxin now being used; this product, with a smaller number of injections, gives much less reaction. Methods of preparation and testing for antigenic quality have been placed on a practical basis; and it is believed that scarlet fever toxoid will be a valuable aid in the control of scarlet fever.

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NASAL OBSTRUCTION*

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ON the subject of nasal function and nasal obstruction even recent editions of our large text-books on nasal diseases give not a line. The authors probably feel they are justified in this, since the function does not seem to be of vital importance and the obstruction is only a symptom of several diseases covered in all the works. However the function is interesting and important and the obstruction is the source of so much annoyance and discomfort to its victim that I feel physicians in all lines of practice should be interested in them.

Perfect functioning of the nose depends on aeration and perfect drainage of both nasal chambers from the cribriform plate to the floor of the nose. If inspired air cannot reach the upper part of the fossae the sense of smell is diminished or lost entirely; if the lower part is closed the inspired air is not properly warmed, moistened and filtered; and if the posterior part is too narrow, the middle ear is not well ventilated and drained. The three functions, olfactory, respiratory, and auditory, are essential to the comfort and welfare of every individual and for this reason we should all bear in mind the signs and symp-

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toms of nasal dysfunction and the possibility of its correction.

When the inspired air is not properly warmed, moistened and filtered, recurrent attacks of pharyngitis, laryngitis or bronchitis are almost sure to occur. It has been found by the ingenious experiments of Ascheurbrandt that air inspired through the nose has been warmed almost to the full extent of expired air when it reaches the nasopharynx. The abundant blood supply of the inferior and middle turbinals is the chief source of the heat and moisture taken up by inspired air. Since the lower turbinal does much the greater part of this work it cannot be properly done if the lower part of the nose is partly closed by a deviated septum or septal ridges. Filtration of the inspired air is another important part of the respiratory function. The current of inspired air is considerably slowed after passing through the narrow anterior nares into the much wider nasal fossae. This causes particles of dust to settle on the mucous membrane of the turbinals and nasal walls where they are planted on a film of mucous and swept backwards to the nasopharynx by ciliated epithelium, and expectorated or allowed to pass unnoticed into the stomach. In cases of long standing inflammation and partial obstruction in the posterior part of the nasal fossae this activity is seriously hindered with the result that the mucous or mucopurulent material accumulates in the posterior nares to irritate and obstruct the eustachian tubes and cause chronic nasopharyngitis. Blood-stained mucous is sometimes expectorated by these patients on account of the rupture of enlarged superficial veins.

Nasal obstruction may be produced by numerous conditions and the symptoms resulting from all forms are very similar. The complaint of nasal obstruction is seldom the chief complaint which causes the patient to seek advice and treatment, but I believe we should pay strict attention to our patient's minor complaints, for these often point the way to the correct diagnosis and to relief of symptoms.

The obstruction to nasal breathing and drainage may be acute or chronic, partial or complete, continuous or intermittent. The obstruction may be in the nasal chambers, in the nasopharynx, or in the oropharynx. In the nasal chambers the acute obstruction is usually due to acute rhinitis including sinusitis, nasal diphtheria, foreign bodies, hematoma, or abscess of the septum. In the nasopharynx we have acute inflammatory disease of the adenoids, and in the oropharnyx, retropharyngeal abscess, peritonsillar abscess and enormously swollen inflamed tonsils to cause acute nasal obstruction.

Since it is difficult to draw a line between acute and chronic in certain types of rhinitis and sinusitis, we should give a few lines to the kind of case which comes between the two. Some cases of rhinitis and sinusitis run a course of a few weeks and apparently recover entirely, but usually recur several times. On examination of these cases some of the signs of acute inflammation—notably redness, tenderness and pain—have disappeared but the swelling remains due to the irritating mucopurulent discharge, or to an allergic sensitiveness to the dust and bacterial protein detained in the nasal chambers by the viscid discharge. In children nasal diphtheria and foreign bodies are sometimes allowed to run a course of several weeks before the parents see the need of seeking relief. Both these conditions have a profuse foul smelling discharge in addition to the obstruction.

The chronic obstruction is the type I should like to give more serious atention to in this paper. In the nose the causes of chronic obstruction are occlusion of the nares, synechia between septum and turbinates, deformities of the septum, chronic hypertrophic rhinitis, atrophic rhinitis, vasomotor rhinitis, chronic suppurating sinusitis, gummata, granulomata, and new growths, especially polypi. In the nasopharynx, adenoids, new growths and adhesions between the soft palate and posterior pharyngeal wall, and in the oropharynx enormously hypertrophied tonsils and tonsil tumors cause chronic nasal obstruction.

The chronic cases develop gradually, almost imperceptibly, and for this reason the nasal difficulty is apt to be given by the patient as a minor complaint. These cases are usually progressive and have no tendency to spontaneous cure, but are almost invariably improved or cured by correcting conditions in the nose, and by medical treatment.

The Symptoms: It has been said that nasal obstruction is partial or complete, continuous or intermittent. In discussing the symptoms the first thought is concerning the degree of obstruction. In case the obstruction is partial or intermittent, the symptom of paramount importance may not be inability to breathe through the nose. In cases of incomplete obstruction symptoms referable to the nose are: Diminished or loss of sense of smell, pain across the bridge of the nose, post nasal discharge, accumulation of crusts in the nares and probably expectoration of blood-stained mucous. The mucoid material collects in the nasal chambers and cannot be expelled because of insufficient blasts of air on blowing the nose; bacteria from inspired air are planted on this mucous or mucopurulent material and produce an odor slight or fetid according to the variety of bacteria. In some cases, especially children, this infected discharge excoriates the skin of the anterior nares and upper lip; and what is more frequent, a nasopharynigitis is produced by the irritating discharge escaping into the oropharynx through the posterior nares. The average patient is unable by any means known to him to rid the nasopharynx of the irritating discharge and in fact is unaware that it is present there. His only complaint is sore throat and intermittent or partial nasal obstruction. The mucous or mucopurulent discharge accumulating in the nasopharynx and posterior nares is more viscid and more abundant at night, and this accounts for the morning gagging and vomiting complained of by so many nasal obstruction cases.

Much of the discomfort from nasal obstruction is caused by improper drainage from the nasal chambers and sinuses rather than by improper ventilation and respiration. The nasal fossae must be well drained and the drainage must go into the nasopharynx. The sinuses are lined with ciliated epithelium which moves all particles of mucus into the middle or superior meatus. The ciliated epithelium of the meatus carries its mucus and débris into the nasopharynx and oropharynx. If the opening of the meatus into the posterior nares is blocked by hyperplasia, new growths, or polypoid enlargement of the posterior tip of the inferior or middle turbinate, the flow of material through that meatus becomes very sluggish or stops altogether. The mucous or mucopurulent discharge thus dams back in the meatus irritating the mucous membrane and attenuating the action of all the ciliated epithelium. This causes engorgement of the erectile tissue of the turbinates, and thickening of the mucous membrane and periostium of the meatus which further hinders aeration and drainage of the sinuses. This accounts for the fact that anterior deviations of the septum frequently cause no annoyance while deviations crowding the middle turbinate so often cause "stuffiness" and pain in and around the eyes. This makes it appear that the deviated septum per se is often not a cause trouble. Almost all deviations of the septum are harmless except when accompanied by hyperplasia and hypertrophy of the turbinates, bulla ethmoidalis, and soft parts of the septum. Reestablishment of nasal drainage does away with symptoms which appeared to be due to a deviated septum.

The sense of smell is lost or diminished in most cases of partial nasal obstruction, but in some it is surprisingly acute. In cases of complete obstruction the sense of smell is lost entirely. The intermittent cases frequently show absence of perception of odors because the odorous material cannot reach the region of the olfactory nerve terminals on account of enlarged middle turbinates or mucus or crusts on the membrane of the superior part of the nasal fossae. Fermentative changes in the mucus held in narrow nasal fossae cause

an odor which is very troublesome to these patients. This odor may be exaggerated by the patient and constitute the chief complaint.

The symptoms referred to portions of the body other than the nose should probably be headed by mouth breathing. In the intermittent or mild cases the nose is usually clear enough for normal breathing during the day but the greater engorgement of the erectile tissue while lying down makes mouth breathing necessary at night. The effects of mouth breathing are drying of the mucous membrane of the tongue, pharynx and lips, accumulation of very ropy or pasty discharge in the nasopharynx, snoring and restlessness at night, recurrent attacks of pharyngitis and laryngitis, and partial loss of the sense of taste. Efforts to dislodge the tenacious discharge from the nasopharynx calls for considerable cough or vomiting in the morning.

In children restlessness at night prevents the quiet sleep so necessary to growth and development and if allowed to continue over long periods will undoubtedly seriously damage a child even if there were no infection present. Sinusitis, earache, and catarrhal otitis media result from obstruction of the eustachian tube. Lacrimation, conjunctivitis, and dachryocystitis occur when the lower turbinate is large enough to obstruct the lacrimonasal duct in the lower meatus. Such mental symptoms as mental depression, loss of energy and inability to concentrate, nervous irritability and even nocturnal incontinence of urine are sometimes due to nasal obstruction and infection.

The etiology of the various types of nasal obstruction is a large field for those interested primarily in rhinology, but I believe a discussion of the condition of the tissues which stand in the way of ventilation and drainage of the nasal fossae and accessory sinuses would fit in here. Whatever the underlying cause of the interference with nasal function may be, matters are always made worse by engorgement of the erectile tissue of the turbinates, edema of the mucous membrane and submucosa or hyperplasia of all tissues. This is true of all cases whether deformity, foreign body, atresia, infection or allergy is the original cause of the trouble. In acute cases like acute rhinitis, or sinusitis, vasomotor rhinitis, the toxic agents cause marked edema of the soft tissues and engorgement of the erectile tissue to the extent of completely filling the nasal chambers. The presence of a foreign body of any kind, or tumor, has exactly the same effect on the intranasal tissue as toxic substances.

In chronic cases the long continued inflammation or recurrent attacks cause hypertrophy and hyperplasia of all tissues including the bone. On the etiology of this hyperplasia and hypertrophy most authorities agree that no single specific cause can be demonstrated. Any condition which produces recurrent attacks or long continued inflammation will cause thickening of the membrane and all underlying tissue, submucosa, periostium and bone. Septal spurs, ridges, and deviations produce such irritation as do growths of all kinds, and chronic infections. Frequent attacks of acute rhinitis and sinusitis, and exposure to dust and irritating chemicals are common causes of chronic nasal inflammation and hypertrophy. Enlargement of the inferior turbinal causes the most complete obstruction. In cases where the middle turbinal has been removed and the cause of irritation still exists, the lower turbinal will increase in size to such an extent as to close the nasal fossae. The posterior tip of the inferior turbinate may become hypertrophied and lengthened, fall into the nasopharynx and obstruct the posterior nares and eustachian tube and cut off drainage from the very important middle meatus.

The middle turbinate is part of the ethmoid bone and is very prone to hyperplasia as are other parts of the ethmoid and the sphenoid sinus. An oversized middle turbinal causes an ethmoid headache even in the absence of suppuration. Patients having rather severe headache between recurrent attacks of suppuration usually have a very much enlarged middle turbinal (1½ c.m. or

more, nearer the floor than normal) and tissues of the bulla ethmoidalis so thickened as to resemble a normal middle turbinal. An abnormally large posterior tip of the middle turbinal closes the normal avenue of drainage from the superior meatus and posterior ethmoid cells. Hyperplasia of the submucosa, periostium, and bony septa of the ethmoid cells and walls of the sphenoid make undue pressure on the large nerve trunks and cause much of the pain between the attacks of purulent disease.

In infants and young children the most common cause of mouth breathing is, of course, enlarged adenoids and tonsils, but it must be remembered that obstruction in the nose is a very common thing in very young children. All of us see mouth breathing persist after adenoid and tonsil removal. The obstruction in children, just as in adults, is only noticeable at night except in the worst cases. Here, too, partial obstruction present during active play is enough to interfere seriously with free drainage of mucopus from the small sinuses, nasal fossae, and eustachian tubes. Infants and children with an insignificant amount of adenoids often have drainage from the superior and middle meatuses blocked by edema of the turbinals. An enlarged middle turbinal in contact with the lateral wall of the nose on one side and the septum on the other is very frequently seen in children. Nasal respiration may be enjoyed in these cases most of the day and night, and because there is no nasal discharge or other nasal symptoms, the restlessness, temperature and cough are not considered due to nasal infection. Edema of the mucous membrane and submucosa is more marked than engorgement of the erectile tissue; consequently drugs which relieve congestion of the erectile tissue do not give the desired results.

From the mention I have made of "nasal drainage" one would naturally conclude that I consider drainage more important than ventilation. Improper nasal respiration is responsible for the nasal "stuffiness" and mouth breathing with all its ill effects but the vicious circle cannot be broken until the nose can rid itself of accumulated irritating material which is the direct cause of the edema, congestion and neuralgias.

AN APPEAL FOR BETTER SANITATION*

By A. J. KEMPER, M. D.
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PUBLIC health work is preventive work and deals with the means and measures to prevent the occurrence and spread of disease. Of all the preventive measures, there are none that play as great a part as sanitation. The people as a whole are becoming educated as to the means and effect of good sanitation, and a large number are using every reasonable effort to sanitate their own holdings and to influence others of its importance.

It is the intention of your County Health Department to stress the importance of sanitation the coming year as we never have done, but in order to be effectual in our efforts, it is highly essential that we have the coöperation and assistance of the general public in carrying on a project in a county so large as ours.

In our public health talks over the entire county, we have stressed sanitation more than any phase of public health work and I cannot speak too highly of the work that has been done, and is being done by the lay organizations of the county, as well as the individual assistance given in carrying on this work. In this appeal we are soliciting the aid and coöperation of all individuals, corporations, municipalities, county boards of education, teachers of our schools, civic clubs, farm bureau organizations, Four-H clubs, Parent-

*An appeal to the citizens of Harrison County for their cooperation in the state-wide sanitary campaign.

Teacher organizations, home makers clubs and every person, or body of persons, interested in eliminating disease.

Statistics show that West Virginia is among the highest in death rate from typhoid fever and from bowel disorders among children, of any state in the Union. This condition is attributed to the poor sanitation so common in our state. This condition is so prevalent as to cause the United States Public Health Service recently to send to us, a special representative from its department and a special expert on rural sanitation, with the idea of developing plans to so raise our standard of sanitation as to enable us to reduce materially this all too high death rate. This problem is one for each person, or body of persons, each community or magisterial district, and each county to solve.

It has been our privilege to have worked in conjunction with the county school board in repairing the school buildings and in putting the schools on a fair sanitary basis, such as ventilation, good drainage, pure drinking water and the establishment of pit privies at all rural schools having outside toilets. We were indeed grateful for the coöperation on the part of the school board, as well as the earnest and untiring efforts on the part of many teachers of the county. We have not as yet had an opportunity to inspect all these improvements, but we hope to do so as rapidly as is possible, and in due time see that the schools of the county have a fair state of sanitation.

Our state school authorities, welfare organizations, and county and state health officials are working for better sanitation as they never have done before, and when we can get the general public impressed with its importance, we can then hope to make rapid and successful strides along this line. We are glad to know that sanitation and the proper disposal of body waste is being stressed and taught in some of our Four-H camps. We were indeed proud to see that this year at Jackson's Mill, the importance of sanitation and a practical course of instruction in the building of pit privies was given to over two hundred young men. This indeed is a very helpful way to put this movement across and we hope that this practical course of instruction to these young leaders from the different counties of the state will put them in position to demonstrate to the general public, the fundamental principles of the proper disposal of body waste and be responsible for the starting of programs in their various communities to lower the death rate from intestinal disorders.

If there ever was a time when it behooves everyone to enforce sanitation in and about the home, the present economic conditions demand it; if ever there was a time when measures for the prevention of disease were necessary, it is now; if ever there was a time when every person should feel his individual responsibility in the prevention of disease in his own home and his neighbor's home, the present economic strain certainly demands it.

Then, if sanitation is the greatest factor in the prevention of disease, how important that each one (renter or property owner) plays his part in righting conditions about his own home. Of all the phases of sanitation, there is none to my mind that means as much as the proper disposal of human waste. Therefore, we are insisting that all homes, schools, churches, club houses, road houses or public places of any kind, be provided with either good sewage disposal or a pit privy so constructed and arranged as to exclude flies from coming in contact with human excreta. This can be done at a minimum cost if a proper knowledge is obtained as to what constitutes a reasonably sanitary privy.

Other things to be considered in the field of sanitation are good drainage about the home and outbuildings, screened doors and windows, pure water supply, pure and non-polluted milk supply. There are some people of today who look upon the practice of these sanitary measures as unimportant and whose minds have not fallen in line with the modern trend of public health education, but these are exceptions and not an indication of the

status of the people as a whole. We today have some persons who adhere to the ideas of witchcraft, fortune-telling and many other signs and sayings of the ancients, the fallacy of which has long been proven.

Sanitation and its practice has not originated in the present age. The idea and the need of clean living prevailed in the minds of some of the leaders of 3000 B. C. It is indeed interesting to note through ancient history that where civilization reached its highest peak, there was a better knowledge of hygiene and sanitation, and on the other hand, where culture and civilization were on the decline, disease raged and was uncontrolled.

It has been said that no modern hygienic measure could be proposed but that its embryo could be found in ancient Jewish laws. The idea of sanitation and the proper disposal of human waste were taught and practiced by Moses during the wandering of his 70,000 followers for 40 years in the Wilderness, nearly 1600 years B. C. It is claimed that Moses was the originator of the idea of the pit privy. In ancient Greece we find that they had an almost perfect development of human hygiene. In the fifth century B. C., Rome was divided into four districts, each of which had sanitary functions, such as the repair of drains, cleaning the streets, prevention of nuisances from dangerous animals and the supervision of taverns.

If the personal hygiene of Greece and the sanitation of Rome had continued, conditions would never have fallen to the low level found during the Middle Ages. Prior to the mediæval period of human history, hygienic methods of living and practice of sanitation in and about the home, in the cities, towns and rural sections had gone hand in hand with civilization until they had reached quite an advance toward a high standard of hygiene and sanitation, but following this period there came a change in the minds of the people, until in the sixth century B. C., ideas had so changed along this line that dirt and filth became popular and bathing was considered ungodly. As a result of the change of their former practices of hygiene and sanitation—what do you imagine was the result? Disease and pestilence raged unchecked and uncontrolled, and hand in hand with this condition, there was a decline in civilization. The effects of this decline lasted to some degree for over 2000 years, and it was not until the beginning of the eighteenth century that there were marked scientific developments toward a thorough establishment of hygiene and sanitation.

In spite of all the progress man has made since the beginning, it was not until the opening of the nineteenth century he had a sufficient knowledge of the human body to make the prevention of disease possible. We are now living in the midst of scientific developments whereby a sufficient knowledge has been obtained through scientific investigation, as a result of which the cause of certain communicable diseases is positively known today, which was a vague mystery 60 years ago. For instance, 60 years ago, people would sicken and die from the Great White Plague, known as tuberculosis, and the specific cause was not known until the scientific discovery of the germ by Robert Koch of Germany in 1882. The year following, witnessed the discovery of the germ causing Asiatic cholera and in 1884, the germ causing diphtheria and that of typhoid fever were definitely determined. Tuberculosis, diphtheria and typhoid fever, as well as the intestinal disorders among children are very much influenced by poor sanitation, especially the proper disposal of human waste, the screening of houses and concurrent disinfection carried on in the homes in which any communicable disease exists.

While the sanitary conditions in the United States, as well as other preventive measures, is far short of what it should be and what we hope it will be, yet it is interesting to note marked reduction in the death rate from some of our most prevalent communicable diseases in the last 25 years, as

shown by reliable statistical reports. In 1901, the death rate from typhoid fever was 32 per 100,000 population and in 1925 it was 8 deaths per 100,000 population; in 1900 the death rate from diphtheria was 43 per 100,000 population and in 1927 the death rate was 8 per 100,000. While the death rate from tuberculosis and intestinal disorders among children have been naturally reduced, yet it is far short of what it can be, if proper sanitary precautions are used, both in and about the private home, as well as in and about all places to which the general public has access.

There are some people today who feel that our improvements in sanitation, as well as the use of other preventive measures that are at our command, have had no effect on the health, happiness and the length of human life, but statistics and observation clearly prove the opposite. For instance, half a century ago, yellow fever, malaria and dysentery were very prevalent and destructive to human life in the southern portion of the United States, and it was not until the establishment and enforcement of strict rules of sanitation, as well as other preventive measures, that these portions of our country were safe places in which to live. The cities of New Orleans and Memphis had a number of epidemics during this period of unestablished methods of control, during which there were over 300,000 cases of yellow fever and about 15,000 deaths and the expenditure of millions of dollars for its control and the care of those stricken with the disease. An epidemic in 1878 cost the city of New Orleans over $10,000,000. But in these days, after extensive research as to the cause and control of the disease so characteristic of a southern climate, sanitary regulations and hygienic methods of living have been established which have contributed materially toward making the South a safe place in which to live.

As an additional proof of our claims, we have reliable statistical evidence to show that 60 years ago the average life of man was 31 years and at the present time it is nearly 58 years; sixty years ago one child out of four died before it was one year of age while at the present time one child out of 17 dies before it has completed its first year. We also have it reliably shown that the general death rate in the U. S., from all causes, decreased 19 percent from 1900 to 1920; the average life in the U. S. has increased over 18 percent in the last 31 years. We do not attribute the results entirely to preventive measures alone, for due credit is due those, who by their untiring efforts and inventive genius, have made the diagnosis of disease more positive. Due credit is also due to the advances in surgery, the work of the specialist and to the improved treatment of the diseases characteristic of mankind, but all these advances compiled with improved sanitation and all other preventive measures have each played their respective parts in the prolongation of human life.

As a nation, we are proud of the position we occupy in many fields of advancement, but in health matters there are nine countries of the world that excel us so far as death rate is concerned. New Zealand heads the world with a death rate of 8.1 per 1000 population during the years 1921 to 1925, while the U. S. showed a death rate of 11.7 per 1000 during the same period of time. We realize that great advancement has been made in the scientific methods for the prevention and control of disease, when compared to conditions among the ancients or even a half century ago, but it has been the history of the past for sanitation to have its rise and fall. In view of the correctness of the decline that characterized the Middle Ages, when it was considered ungodly to bathe and live clean, and in view of the lasting effect of this decline that lasted for hundreds and thousands of years, it behooves the people of every county, state and nation not to be content with our much improved sanitation of the present day, for much improvement can still be made that

will materially lower our death rate and add much to the health and happiness of the people.

This is a duty that all of us owe to our home, to our community or county, our state and nation, and it should be the pride of every man and every woman to lend that helping hand in making their community, from a sanitary viewpoint, the most healthful and desirable place in which to live.

As the Health Officer of your county, I appeal to every citizen of Harrison county to join with us in our effort to make our county the banner county of our state and thereby contribute our mite toward raising the sanitary status of West Virginia.

THE RELATIONSHIP BETWEEN THE PRACTICING PHYSICIAN AND THE HEALTH DEPARTMENT*

By JOSEPH P. FRANKLIN, M. D.
Cumberland, Maryland

We often hear the expression "Why the cleavage between the private practice of medicine and Public Health?" This difference of opinion we feel represents more of a theoretical than a practical one. We all know that today there is an increasing amount of unrest among practitioners of medicine, because of what they think is an invasion of their proper rights and prerogatives. We have heard rumblings and grumblings here and there, but in the past year or so organized medicine through its societies and associations has brought the grievances to light and the time is not far distant when we hope to see a fuller and better understanding between physicians and organized public health. We believe that a great deal of the trouble in the past and practically all of the trouble of the present has been or is due to the fact that physicians and health officers have talked at each other rather than to or with each other.

Certainly we must all agree that with the modern advance in civilization and education which has wrought many changes in the customs of people there have also been many advances in medicine which have wrought many changes in the practice of the art. I refer not to the newer and better methods of the treatment of disease, but to the practice of the art of the prevention of disease and the promotion of health, better known as public health. These modern advances and changes have brought also an increased knowledge of the lay person in the practice of both medicine and public health. This increased knowledge on the part of the lay public has brought about demands for better service in medicine and public health. This means that both practitioners of medicine and public health will have to be up and doing in order to keep step with the times.

Now I know that there are a great many things to discourage the general practitioner of today. A certain amount of loss of prestige, which we as physicians know the doctor has suffered, this change in the conception of what sort of medical service country people ought to expect to receive, this increased education, the decrease in rural population and in most cases productivity can but affect the rural practitioner. It has done so and will continue to do so. In one county in New York state, with a population of 85,000, recently studied, there are two small cities and fifteen villages. In the rural sections of that county, there is not one single doctor. All the doctors live in the cities and villages.

After all, these conditions, and I'm sure that you will agree with me that they are conditions, are here and they must be recognized. It is of no value, however, merely to recognize the fact that such conditions exist. The real point is what can be done about it. Facing these conditions as they

*Read before the G. H. H. M. Medical Society at Piedmont in May, 1933.

are, what is going to be the policy followed by the medical profession and the health departments in the next few years to meet them.

There is a steadily increasing understanding in the medical profession that the prevention of disease is approaching in importance the cure of disease. There is also a steadily increasing public understanding of the importance of the prevention of disease.

While there is a change in the general professional attitude toward the need of better organization for public health administration, the profession still has some fear that it may easily advance into the realm of state medicine. The recent reports of the five-year committee on the cost of medical care have no doubt served to increase this fear, but I for one still believe that, despite the things that have been said already in this address, the physician of today still has enough prestige, brains and brawn to control the practice of medicine and public health. It is all very well for lay persons and some public health officials to say that the doctor should do this or that the doctor should do that, but these expressions would not be used so often if they understood the human side of his problems.

The essential relationship between the practice of medicine and the health department is simply that the practice of medicine is not organized for the administration of public health and never will be. Every health influence today knows that while the practice of medicine is the foundation of public health and that public health is never separate from the practice of medicine, it is the duty of government to furnish equipment for public health practice and to provide for the expense of administration through taxation. The medical profession of today and tomorrow requires the aid of government, the machinery of a coöperative health department, the educational capacity of lay associations, and research work of foundations. Medicine's contribution to all of these agencies is to give them expert scientific knowledge and sound guidance.

The organization of health departments under the various forms of government, local, state or national as a branch of that particular form of government has given them certain powers and authorities. I believe that the average physician in the past has looked with too much resentment on these powers and authorities. It is true that we must have legislation to govern the handling of food and dairy products, the disposal of sewage, the sources of our water supplies, the control of communicable diseases, etc., and yet the health department of today feels that it is not a police department and that there are other fields in which its activities mean much more in the prevention of disease and the promotion of health. I refer particularly to the field of education and by this I do not mean education of the lay public alone for I feel that many practicing physicians are still uninformed as to the real objects and policies of the practice of public health.

A short time ago, I read an article by one of the leading men in public health in this country and I am taking the liberty to quote him at the present time: "I have recently interviewed nearly 100 country practitioners of medicine in their own offices, under the auspices of their own county medical societies, inquiring of them how much preventive medicine they are doing. This was in two counties which have been swept over by the usual campaigns in the interest of the various new phases of public health.

In relation to maternal hygiene, infant hygiene and school hygiene, immunization, or what not, the situation is the same. They all would like to do the work, but they can't get the people to coöperate. The truth of the matter is the doctors with whom I have talked do not know exactly or in detail just how to go about this new work. They lack two things: technique and salesmanship." Ways and means must be found whereby the practitioner of medicine and particularly the so-called country doctor can be helped. I am certain that these can be found by a closer

coöperation between the doctor and the health officer.

There is a definite interrelationship of the profession of medicine, health departments and other departments of state and local governments dealing with health problems, school hygiene and health services, industrial hygiene and general medical problems arising from the present day rapid social evolution. I do not believe that the medical profession is under siege. Its services to mankind are too essential and too indispensible to think of that.

The protection and promotion of public health is one of the primary functions of government. Times are changing and the profession of medicine is changing with them. Medicine is changing from the curing of disease only to the inclusion of preventive practice. This change is slow we must admit, but I can recall that it was only a few years ago when many physicians did not even consider giving typhoid vaccine to contacts of a case of that disease. Now we consider a secondary case of typhoid fever in a family as much of a misfortune and I might say even a disgrace as a case of child-bed fever. It is not the duty of the health officer to immunize contacts of a case of typhoid fever in a home if they can afford to pay for this service and yet I regret to tell you that it is not an infrequent occurrence with health officers when they visit reported cases of typhoid fever to be told by the family that the attending physician has said nothing about this.

Another practical thing that I would like to speak of is the diagnosis of suspected cases of communicable diseases. I do not know whether it is the fact that the practicing physician does not know that one of the duties of the health officer is consultation work in cases of suspected communicable diseases or that in many instances it is that they have no respect for his ability, but in any event when he has been called in, the responsibility for further spread of the disease rests on his shoulders and not yours. Certainly if I were practicing medicine and had a case of suspected diphtheria or scarlet fever in a school child and could not make a decision myself, I would not want to take the responsibility of permitting that child or other children from the homes to go to school.

And now let us talk for a few minutes about this question of immunizations against diphtheria, smallpox and typhoid fever. I do not believe that it is the desire of any health department to do any of this work that can and *will* be done by the practicing physician. In the county of which I have the honor to serve as the full-time health officer, it is not our policy to stimulate people to have their babies protected against diphtheria by the health department, but we urge them to take them to their own family physician. Despite this fact, we find few children protected against that disease when they come to school. I realize that the medical profession is not a sales organization, but in the same thought we must consider them educators and advisors as they have always been and they must use their knowledge and influence with parents to have their children protected against diphtheria and smallpox early in life.

Another important question that I would like to bring to your attention is that of maternity and child hygiene. I do not have to tell you of the importance of pre-natal care and yet I am sure that all of you who practice obstetrics will tell me that some if not many of your cases come to your attention only after the woman has gone into labor. Many babies, especially those delivered by midwives, are never seen by a physician unless or until some serious acute illness develops in that child. Again I call your attention to what I feel your duty as the family physician to your responsibility in the education of your clientele to the importance of medical supervision of babies and growing children.

Many state and county health departments have in the past few years spent a good deal of time and money in conducting clinics for the examination of babies and pre-school chil-

dren. This may have had some educational effect and may have resulted in some benefit to the individual child, but until they result in adequate medical supervision for every child they will not have accomplished their full purpose. And now I must refer to something which I regret very much and which may be resented by some of you, but I said in the beginning that I had attempted to please no one, not even myself, in this discourse. Many times it has been our experience that when babies and pre-school children were examined at clinics and referred to the family physician their mothers met with no coöperation on his part. I do not mean by this that the doctor was antagonistic, but he lacked the technique and salesmanship referred to earlier in this address. To illustrate what I mean: A child is examined and referred to the family physician. The baby may have some physical defect, such as tonsils and adenoids that need to be removed, he may be underweight or undernourished and yet show no signs of actual illness or he may be perfectly okeh. The doctor loses the educational opportunity of impressing upon that mother the importance of having that particular physical defect corrected if that be the case or of medical supervision of the well child if such is the indication by saying, "Oh, your child isn't sick, so you bring him back or let me know if or when he isn't well."

Now I have spent a good deal of time not in condemning or criticizing the doctor, for God knows we need more and better ones, but in trying to point out to you the responsibilities of the doctor to the public, at least to that part of the public represented by his own clientele. There are, however, some things that I can say and perhaps many things that you can say concerning the mistakes and shortcomings of the health department. These for the most part can be briefly summed up in the fact that there has been too much activity without consulting with and informing the doctor.

In conclusion let me say that the two important factors in public health are the medical profession and the health organizations. They are at least co-equal. Both are essential in any health program and I feel that both are essential in the practice of medicine. Let me urge you as practitioners of medicine to coöperate with your health department by practicing preventive as well as curative medicine.

MERCER COUNTY HEALTH ACTIVITIES

By D. B. LEPPER, M. D.
Bluefield, W. Va.

HAVING been asked for a report on the health activities of the Health Department for your better understanding, I will refer to our health activity during the last seven years and our present status and plans.

Under preventive health work comes certain fundamentals which include a safe water supply, proper sewage disposal, good food and milk production, the control of communicable diseases and vital statistics. All these activities depend upon continued and rigid inspection and enforcement for good results. For your consideration I will discuss briefly some of these fundamentals.

Our city water supply is examined periodically both at the city laboratory and at the company's plant. It is chlorine tested and during the last seven years one case only of bad tasting water was noticeable. This was due to lack of circulation of water in the Ada dam, which dam has now been discontinued. This pig-pen odor was caused by diatoms or vegetable organisms present. It is interesting to note that dippings from the depth of ten or twenty feet were free from the growth, but in those made at thirty feet they made

*Read before the Mercer County Medical Society at Bluefield on October 26, 1933.

their appearance. The Health Department was able to solve this problem with the coöperation of the water company and the State Engineer. The city water is safe but a number of springs in and around Bluefield are polluted and condemned and each year we find a number of cases of typhoid fever traced to these springs and wells.

Our sewage drains from an area about the postoffice to a filtering plant in the east end and from South Bluefield and about Mercer Street it is routed to the west end. The disposal plants are hardly adequate and when times are better, new installations may be necessary. A few years ago we had six hundred and eighty privies of a questionable character. More than half of these have been replaced, some with sewer lines and others with septic tanks. There still remain a number of these privies on hills which cannot be sanitated properly because of their location. The privy contents are collected by a scavenger and the owners are supposed to pay fifty cents every week or two for this service. Samples of sewage are collected at repeated intervals and analysis sent to the State Health Department for their information.

Milk Control: Milk in the city seven years ago was generally not fit to drink. High bacterial counts and high temperatures were frequent. Most of the milk was of poor grade. The present Standard Milk Ordinance was adopted in Bluefield in 1926. I believe Bluefield was the first city in West Virginia to adopt the ordinance, which calls for twenty-six requirements that stress the proper care of the milk-house, barn, milkers, tubercular testing, etc. It has been a long uphill fight to get a good milk supply and we have been fortunate in having a good milk inspector. We now occupy one of the first places in the state with a raw milk supply. But 32 per cent of our milk is pasteurized. Mercer county has five small cities and our milk inspector is on part time. His salary is $75.00 per month, with an allowance for gas and oil. If other cities would join with Bluefield, the inspector could be on full time. He practically covers the county now. The cost of a full time inspector would be $175.00, including gas and oil. Safe milk is entirely dependent upon repeated inspection and enforcement of regulations and this important work should continue. The State Inspector comes once or twice a year to check up on the work of the local inspector. Such inspections are very beneficial in bringing about the proper grading of milk. We have sixty-nine dairies, four milk plants with thirty-seven producers, most of these producing grade A milk. Several violators were recently in police court for mislabeling. Our milk comes from a radius of twenty-five miles from Bluefield and in a few cases eighty miles away. I have had several doctors state to me that since this improvement has been made in the milk service and milk supply, that the infant mortality, due entirely to intestinal diseases, brought on by ungraded milk, has been reduced practically to the vanishing point. This applies only to Bluefield, where the milk regulations have been enforced, and does not apply to surrounding territories where milk of an inferior quality is used.

Food Control: When we had a full time inspector, our restaurants, grocery stores and drug stores were weekly inspected. Many pounds of food stuff have been condemned. Much of this work has been reduced, due to a lack of personnel. Drug stores are required to use chlorine rinse. Observing this item is more important than most people suspect. Health certificates are required from all food handlers.

Control of Communicable Diseases: Mass immunizations have been carried out in the schools. In the last seven years no child has been reported as having smallpox. Ninety-nine percent of the school children have been protected against smallpox in Bluefield and about 85% to 90% in Beaver Pond District can show a primary take. During the last eight years, eight thousand children have been given smallpox vaccine. This year only the beginners in school required vaccination,

which has been done. Toxin-antitoxin has been given to about 4,000 school children and typhoid vaccine to 3,500 this year. The school nurse has been very efficient in assembling children for physical examinations and for immunization. The defects have been noted and when possible corrected.

The Prenatal and Well Baby Clinics have relieved the Health Department of considerable work. Venereal diseases have also, to a large extent, been taken over by the medical profession, both in office and in clinics Supplies have been available from Charleston in urgent cases.

During the last two years I have been called upon to do more than regular health work. I have unfortunately been forced to acquire a very large practice. Over 5,000 patients have come to me for minor and serious ailments of all kinds. I have made over 500 outside visits and I wish to state that this work has been much more difficult for me due to the fact that I have had inadequate supplies and often times lacked even the necessities incident to doing this class of work. It is a well recognized fact that for any general practice, including cases of all kinds, a large amount of ordinary medical supplies are required. This means a large quantity of medicines, ointments, dressings, etc. I regret to state that it has been impossible for me to secure same and I have been forced, in a great number of cases, to render inadequate service. There seems to be some difference of opinion regarding the Health Officer doing this work, as well as immunizing, and I want to go on record as stating that I will stop any time that the medical society so desires. Immunizations can be done by you physicians if you wish to take the time away from your practice. The Health Department is doing strictly charity work in the treatment of the individual. The laboratory is free to all physicians who have indigent patients. We are examining smears and cultures and making blood analysis for doctors with poor patients. As the city lacks funds for supplies for blood analysis, we may be called upon to discontinue the Kahn test, which may be a hardship upon indigent people.

Venereal Diseases: We still remain shipwrecked in the control of venery. Many of the victims infected are convinced that after taking a few shots and their discomfort gone, they are quite well. A large number have been given from a few shots of Neo up to thirty or forty and in a longer or shorter interval, come back to the Health Department with a four plus seeking further treatment and we wonder sometimes if there is enough Neo in the United States available and fall back to using K I and Hg. We believe that a follow-up program will be needed for those who have been only partially treated. Prophylaxis seems to be hard to put across. In spite of the saying, "it will increase immorality by advertising protection from venereal diseases," the educational value of a poster, if legal, advocating prevention of lues and gonorrhea, posted in every public urinal, would save many a one from being caught by a venereal disease.

Vital Statistics: These figures are important for insurance risks, for medico-legal cases, such as homicide. They are required for a pupil entering schools and for voting ages. While not absolute, they are indicators of the prevalence of the disease. For instance, our infant mortality may be due to too many cases of ileocolitis, etc., our maternal deaths may be too prevalent. Physicians do aid the Health Department of federal, state and city by reporting readable statistics. Venereal diseases may be reported by number instead of name. Vital statistics are very valuable to compare causes and the instance of cases and deaths in any given locality.

Epidemics: We have had some scares, but no severe epidemics of communicable diseases during the last seven years. With a population of twenty thousand, there are always some outbreaks of the exanthemata and some sporadic cases and Bluefield is no exception. We are fortunate in having a

small incidence of tuberculosis. Pneumonia, heart disease and cancer still remain our principal causes of death.

Cost of Health Work: I desire to remark at this time that the U. S. P. H. S. states that for minimum health work, $1.00 per capita is needed. Our Health Department is working on thirty cents per capita, which includes milk control. Without a milk inspector, the cost is twenty-four cents per capita. The Health Department has a full-time health officer, a bacteriologist and a part-time milk inspector. The city no longer employs a nurse, a sanitary officer or a stenographer. I realize that times are unusual and that funds are not readily available, but it ought to be worth something to inspect the public eating and drinking places and correct insanitary conditions of privies and nuisances generally.

Time will not permit a more detailed report and I have been able to touch on only the more important phases of our health work.

I wish to thank the doctors for their coöperation and kindness during the time I have been in Bluefield.

ESTRIN REACTIONS IN HUSBANDS OF PREGNANT WOMEN

By RAY I. FRAME, M. D.
Sharples, W. Va.

FROM time immemorial physicians have laughed at the symptoms of illness of the husband, who attributed his condition to his wife's pregnancy. In some cases the diagnosis of pregnancy has been made by the husband before the wife or the physician were aware of her condition. Most of us in country districts recall being consulted by married male patients who were sick, and said that they were "breeding." We have discovered that there is a very prevalent belief among certain people that the husband shares the discomfort of pregnancy with his wife. It has heretofore been the custom for physicians to tell these stories with considerable gusto to their professional friends and laugh together over such ignorant ideas.

However, in view of the observations made by such men as D. Edwards (Am. J. Obstet. and Gyne., 16; 694, May, 1932) concerning the excretion of Estrin or the female sex hormone during pregnancy in amniotic fluid, urine, meconium, feces, milk, bile, gastric juice, salves, etc., it behooves us to wonder whether or not, we have not been dealing with a true Estrin reaction. This premise is tentatively based on the facts that (1) Estrin would of necessity be found in the excretions of the sweat glands of pregnant women, although this has not been mentioned in such articles as above referred to; (2) most cases of marked Estrin reaction have been observed in that class of humanity where baths are of infrequent occurrence; (3) the negro, whose sweat glands are very active, constitute 75% of the cases seen; (4) in every instance the reaction has only been observed in husbands who sleep with their wives.

Case 1: A. W., a negro, aged 38, a coal loader, whose wife was multipara-six. The patient was first seen May 10, 1926, complaining of morning nausea and vomiting, slight epigastric pain, a general feeling of malaise, aversion to certain foods, and a loss of appetite. Objective findings were entirely negative. He said that he was "breeding" and that as a consequence he knew that his wife was pregnant. She denied this, but subsequent events proved him right. The patient gave a history of having had the same symptoms during his wife's previous pregnancies. Since 1926 the wife has had four additional pregnancies, and the patient has had the same recurring symptoms. In December, 1932, during the most recent gestation of the wife, the symptoms were considerably more pro-

nounced. Heart rate was 115 and he was confined to bed for one week. The patient was instructed to sleep apart from his wife and the symptoms promptly subsided. Diagnosis: Estrin reaction.

Case 2: A. J., a native, white, West Virginia mountaineer, coal loader, whose wife was one month pregnant. Seen September 5, 1927, with slight epigastric pain, nausea and vomiting throughout the day, feeling of malaise and aversion to certain foods. This patient insisted upon staying in bed for three weeks. Objective findings were negative. Diagnosis: Sympathetic illness. In reviewing this case at the present time it is reclassified as an estrin reaction.

Cases 3, 4, 5, 6, 7: Similar to above, with symptoms in varying degrees.

Case 8: J. W., a negro, aged 40, coal loader, seen first in November, 1932, with symptoms identical to case 1. Symptoms cleared up entirely when he slept in a separate room by himself. He tried returning to his conjugal bed at my suggestion eight times, and had a recurrence of his symptoms each time. He then refused to carry out my suggestions and insisted upon sleeping by himself. This patient says that his wife does not "smell right" when she is pregnant.

If the above mentioned cases are actually cases of illness due to inhalation of body vapors containing the sex hormone of the pregnant women, one must understand that it is possible for large quantities of this material to be absorbed by the lungs during the sleeping hours. It is a common occurrence to find such a couple sleeping in a small room without ventilation. In cases 1 and 8, husband and wife slept together with the bed clothing over the heads. In any event, this is a matter of speculative interest and should stimulate further research as to the effect of the female sex hormone on the male.

Carrying this thought still further, one wonders if it is not possible that this substance has not been responsible for much marital troubles during parturition in families where baths and other rules of personal hygiene are more frequently observed, and, consequently, less Estrin inhaled by the husband. Frequently, one hears a husband, of the better classes, say that his wife is very difficult to live with when she is pregnant. Could it be that the husband has been affected by the inhalation of more or less of this substance; that his manner toward his wife subtly changes; that his wife senses this fact and is quick to take the usual wifely methods of retaliation? At any rate it should be good therapeutics for the obstetrician and the family physician to insist upon separate rooms for the husband and wife during pregnancy.

HOME TREATMENT OF THE EYES

Dr. William L. Benedict, chief of the Section on Ophthalmology of the Mayo Clinic describes some popular fallacies concerning home treatment of the eyes in the winter issue of *The Sight-Saving Review*. To quote Dr. Benedict:

"There is very little understanding on the part of the public as a whole that a most potent antiseptic agent is supplied to the eye by natural means: that is, by the tears. Laboratory experiments have shown that for most disease-producing organisms, normal tears are hundreds of times more effective in protecting the eye than solutions of drugs in such strength as can be borne. The tears are supplied in amounts that are properly regulated, and counteract the effect of most air-borne bacteria.

"Because the general public has learned that many eye lotions are put up in a solution of boric acid, the better informed immediately turn to this solution as the one safe substance that can be used for any disorder of the eye. Hence, we find that many persons are using an eye cup, giving the eye a daily bath in boric acid solution, in the hope that their disorders will soon pass away and the necessity for visiting a physician may be obviated.

"The healing properties of boric acid are infinitesimal. It is used chiefly by physicians as a vehicle to carry small dilutions of more potent drugs; and because it retards the growth of fungi or of contaminating bacteria, it forms a convenient way to dispense medicines for the eye. There is not sufficient reason for the regular use of eye baths, as there may be for cleansing the teeth or gargling the throat. The practice of giving eye baths with any solution when eyelids are not diseased, except on the advice of an oculist, should be discouraged."—*Pennsylvania Medical Journal.*

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

As early as 1884, Weichselbaum described the presence of acid-fast bacilli in the blood of tuberculous patients. Scores of workers have since identified tubercle bacilli in the blood of patients with various forms of tuberculosis. A few have reported the occurrence of tuberculous bacillemia in cases with no evidence of tuberculosis. Löwenstein particularly claims to find tubercle bacilli in the blood in many non-tuberculous clinical conditions. Pronouncements based on such reports have led to the hypothesis that many clinical conditions of doubtful etiology are of a tuberculous nature. What evidence is there to support this doctrine? Tuberculous bacillemia was studied by G. S. Wilson and his collabortors. Their report was published as a 150 page brochure by the Medical Research Council of Great Britain. High points of the report are here quoted:

Tuberculous Bacillemia: Marked discrepancies occur in the results of workers who have endeavored to demonstrate the presence of tubercle bacilli in the blood by microscopical examination. Some have failed to find tubercle bacilli even in advanced cases of tuberculosis while others claim to have found them in every case of pulmonary and non-pulmonary tuberculosis examined, as well as in a high proportion of patients suffering from non-tuberculous disease and of perfectly healthy persons.

The microscopical techniques employed show two main sources of error: (a) confusion caused by artifacts such as fibrin threads, partly disintegrated leukocyte granules, lipoid portions of the red cell envelope, etc., and (b) confusion caused by contamination of the preparations with saprophytic acid-fast bacilli, which are frequently present in tap and in old distilled water and in reagents made up with them.

A surprising degree of discrepancy is noted also in the results of different workers who have endeavored to demonstrate the presence of tubercle bacilli in the blood by the guinea pig inoculation method. These discrepancies are undoubtedly attributable to faulty diagnoses of the inoculated animals, based on insufficient grounds. However, the animal inoculation method as practiced by capable workers is probably the most reliable means of demonstrating the presence of virulent tubercle bacilli. Records of those workers, whose competency seems to be assured, revealed that only a small number of positive results have been obtained, most of which have been with blood from patients suffering from miliary tuberculosis, tuberculous meningitis, advanced pulmonary tuberculosis and occasionally surgical tuberculosis.

Löwenstein has worked out a technique of blood culture with which he has been able to obtain a surprisingly high proportion of positive results, not only in definite cases of tuberculosis but in a number of diseases, the tuberculous nature of which is not generally recognized. The investigators found it difficult to analyze and evaluate the work on which this claim is based. They point out numerous anomalies and contradictions in the results obtained by Löwenstein and subsequent workers who endeavored to duplicate his technique. One of the greatest difficulties encountered was the incomplete and confused nature of the records published by Löwenstein.

Conclusions: The investigators conclude without equivocation that tuberculous bacillemia, except in patients suffering from advanced and grave disease, is a rare and sporadic phenomenon.

"In diseases such as articular rheumatism, polyarthritis, chorea, multiple sclerosis, schizophrenia, retrobulbar neuritis, Hodgin's disease, and certain affections of the skin, which are not accompanied by gross lesions of tuberculosis, there is practically no evidence that a tuberculous bacillemia ever occurs, nor are there any sound reasons to suppose that the tubercle bacillus plays any essential rôle in their etiology."

Tuberculous Bacillemia, G. S. Wilson, Medical Research Council, London.

Progress in tuberculosis control and treatment is well reflected in the annual reports of sanatoria that come to hand. One such report is that of the Tuberculosis Service of Bellevue Hospital, New York City for 1933 prepared by James Alexander Miller, physician in charge. A few excerpts of particular interest follow:

Modern Tuberculosis Service: The Service is divided into four main groups: (1) The Wards, (2) Out-Patient Clinic, (3) Day Camp and (4) Settlement House. The four wards, with a total normal capacity of 174 have been overcrowded, the

winter census running as high as 240. During 1933 there were discharged 2,280 cases of tuberculosis and 533 cases of non-tuberculous conditions. About 15 per cent of the patients are convalescent and ambulant, 35 per cent are chronic bed cases and 50 per cent are acute cases. The cases admitted include an average of 15 to 20 per cent of patients with chronic lung diseases who are found not to have tuberculosis. These are not discharged because of their non-tuberculous condition but receive special treatment.

Collapse therapy is changing the whole trend of the care of the tuberculous. Approximately 40 per cent of all cases of pulmonary tuberculosis are benefited by some form of collapse therapy. An average of 27 pneumothorax treatments per day are given. One hundred thoracoplasty operations were performed during the year.

Out-Patient Work: The Out-Patient Department admitted last year 2,063 cases. The rotation of physicians between the Ward and Out-Patient Department services makes coöperation between the two effective. An important new field of activity has been the pneumothorax clinic for ambulatory cases. During 1933, 3,329 pneumothorax treatments were given. This work has opened up a new field of medical effort for it enables many patients to stay at home while continuing their treatment and at least one-fourth of them are able to continue at work. This increasing class of cases is another striking evidence of the change of emphasis from one on health resort and sanatorium treatment to home and institutional treatment in centers of population.

A very important feature of the Out-Patient Department is the supervision of home conditions through the visiting nurses of the city and the bringing in of contacts for examination. The children's clinic is largely constituted of this class of cases. The provision of material relief by the proper agencies is not neglected.

The Day Camp for cases that do not need full sanatorium care is really a floating hospital moored in the river adjoining the hospital grounds. During the year the census of the day camp has averaged 30 men, 15 women, and 75 children. The maintenance expense is comparatively small but the results have been extraordinarily satisfactory.

Bellevue Settlement House, which has a capacity of about 22, renders a very useful service for girls with tuberculosis who are without suitable homes, either while waiting to go to, or after returning from, a sanatorium. The entire expense of the Settlement House is borne by private funds through the Woman's Auxiliary.

Supplementary Services: Collateral activities of the Bellevue Tuberculosis Service include (1) Education in chest diseases for undergraduate and postgraduate students. (2) Special training of the medical staff. (3) Social Service, including the activities of the Women's Auxiliary. (4) Coöperative efforts in the development of modern chest surgery. (5) Pathological and clinical laboratory work, including scientific research. (6) Contributions to medical literature.

The Service is chronically overcrowded and overworked. All patients who apply to the hospital must be admitted and since the total number of tuberculosis beds in New York City as a whole has been markedly diminished in the past ten years transfers to other institutions are often delayed. The popularity of the Service has made patients eager to be admitted and reluctant to be transferred. The depression has added heavily to the burden. Plans for expansion of the Service are not wanting and it is hoped that these will receive most careful consideration.

ORGANIZATION MEMBERSHIP

First-hand knowledge of the workings of socialized medicine in England is being obtained by two official observers sent there for that specific purpose by the Michigan State Medical Association.

The medical profession await with great interest the findings and report of this commission.

In a recent letter to Dr. F. C. Warnshuis, Grand Rapids, secretary of the Michigan society, Dr. Henry A. Luce, one of the investigators, described some of his experiences in studying the British medical insurance set-up.

Dr. Luce made this pertinent observation:

"As we view the matter from both sides of the water, the importance of medical organization looms infinitely more vital. British medical successes and failures have been due respectively to organization and disorganization. Encourage every member of the profession to remain loyal and steadfast in his society affiliations."—*Ohio State Medical Journal.*

OMISSIONS THIS MONTH

Due to the fact that the complete Convention program is published in this issue of the JOURNAL, a number of items have been held over until the June issue.

PRESIDENT'S PAGE

Your state meeting will be held in Huntington on Monday, Tuesday and Wednesday, May 14, 15 and 16, 1934.

The Association is the organized mouthpiece of the profession which you have chosen to follow; the profession which gives you your livelihood.

Discussion at the Huntington meeting will involve new trends in scientific medicine, new thoughts in medical economics, new advances for your profession in your State.

Your meeting at Huntington will bring you together again with your confreres; will step-up your interest in medical practice; will strengthen your resolve to keep abreast of the times.

Come to Huntington and renew your old acquaintances. Come to Huntington and forget your office cares for a day or two. Come to Huntington and talk things over with the boys who have the same interests and the same problems as yourself. Come to Huntington, if for no other reason, and have a good time.

A fine program of essays, clinics and exhibits has been arranged. The Cabell County Medical Society is leaving no stone unturned in preparation for your welcome and entertainment. The Huntington meeting bids fair to be the greatest gathering of doctors in the history of West Virginia. Your attendance will do good both for yourself and for the Association.

Roy Leigh Miller

President.

THE WEST VIRGINIA MEDICAL JOURNAL

P. O. Box 787
Public Library Building
CHARLESTON, WEST VIRGINIA

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ON TO HUNTINGTON

This is the annual Convention Number of the WEST VIRGINIA MEDICAL JOURNAL. The complete program for the Huntington meeting on May 14, 15 and 16, 1934, will be found in the pages that follow. In addition, this issue carries complete convention data regarding entertainment, golf, technical and scientific exhibits, special meetings and other features.

The scientific program deals with both scientific and economic subjects. The out of state essayists who have accepted invitations to the Huntington meeting are distinguished leaders in their particular field of endeavor. Our own West Virginia doctors on the program are expected to contribute largely to its success.

The Cabell County Medical Society, through a special Convention committee, has been hard at work for weeks getting everything in readiness for the coming meeting. One of the features arranged by the committee will be the afternoon clinical sessions—one at the U. S. Veterans' hospital and additional clinics at the local hospitals. A second feature will be the dinner dance and floor show which will wind up the Convention on the last evening.

Although the convention proper will not get under way until Tuesday morning, the four sectional meetings will be held on Monday afternoon, May 14. Unusually good sectional programs have been worked out by the sectional chairmen and secretaries and a record attendance is anticipated for these meetings. The house of delegates will hold its first meeting on Monday evening for the transaction of business and will meet again on Tuesday evening, immediately after Dr. Roy Ben Miller's Presidential Address, for the election of officers.

Convention headquarters will be set up early Monday morning at the Hotel Pritchard and all meetings, exhibits, sectional gatherings, etc., will be held under the Pritchard roof. The registration desk will be located in the exhibit lobby on the mezzanine floor. The council will hold its first meeting at the Pritchard on Monday morning. A special meeting of the West Virginia Heart Association will also be held at the Pritchard Monday morning.

The general scientific assembly will be called to order in the Pritchard ballroom on Tuesday morning by Dr. Miller and the general convention program will be followed through until the dinner dance on Wednesday evening.

Increased interest in the Association's activities during the past several years has brought about an increasing convention attendance at each succeeding convention. With many important economic and legal problems confronting the profession at this time, the Huntington registration bids fair to set a new record.

Again we urge every member who attends the Huntington meeting to bring along his 1934 membership card. The record cards of the Association will, of course, be available at the registration desk but a great deal of inconvenience will be saved for every doctor who has his membership card at hand.

Every doctor who attends the Huntington meeting will get much of benefit from the scientific program, he will renew his professional friendships over the state, and, according to the Huntington doctors, he will have a good time. Doctor, a few days away from your office will do you good.

LIST PRACTICE UNDER FIRE

At a recent meeting of the Kanawha Medical Society, a special committee appointed for the purpose of investigating "list" practice reported that somewhere in the neighborhood of 50 members were engaged, in one way or another, in "list" work. The report also covered the various industrial "list" contracts held by Charleston hospitals.

Following this report a resolution was introduced which, in effect, will automatically expel all of the above doctors from the Society on October 10, 1934, if they are still engaged in "list" practice at that time. However an amendment to the resolution was offered and adopted to make the resolution contingent upon similar or equivalent action by the State Association at the Huntington meeting. The resolution, with the amendment, was carried.

As the situation now stands, if the House of Delegates at the Huntington meeting passes a resolution to expel all members in the Association who are engaged in "list" practice, then the resolution of the Kanawha Medical Society is in full force and effect. However if such a resolution is not passed at Huntington, then the resolution of the Kanawha Medical Society becomes null and void.

The JOURNAL has published much on "list" practice from time to time and we do not wish to enter into a further discussion now. We cite the action of the Kanawha Medical Society simply to acquaint the JOURNAL readers with the fact that the "list" question will be in the foreground at the Huntington meeting.

We will make no attempt to predict what the action of the House of Delegates will be on the "list" question. We do predict an interesting discussion with considerable oratory. We urge every member of the Association, and especially those who are delegates, to consider this problem with the earnest and sober attention that it deserves. We await the verdict with keen interest.

A MATTER OF ETHICS

Some few weeks ago two different publishers sent representatives into West Virginia to sell the medical profession, or at least a few of its individual members, on the idea of having their names published in an insurance directory. Both publishers had very much the same plan. Their directories were being made up for the large insurance companies. The large insurance companies occasionally have work for a competent physician or surgeon in various West Virginia cities. They don't know who these competent physicians or surgeons are so, presto! they look in the directory.

And so for the sum of $25 cash in hand on date of sale, Dr. Blank may have his name published in the directory and thereby reap the harvest whenever the big insurance companies need any work done in his particular city.

The above scheme may not be a racket. It may be just exactly what it is represented to be by the salesmen. It may result in considerable benefit for the doctor who buys space in the directory. In that event, we still prefer the old-time idea that a doctor should not pay out his good money in an effort to get the jump on his confreres, no matter how good he may be. If the service outlined above is of such great value to the insurance companies, it would appear that the insurance companies would do well to compile their own directory. We would suggest that their directory be compiled on a merit rather than a cash basis.

As stated above, we do not say that this scheme is a racket. We do say, however, that the salesman for one of the companies gave three splendid references in distant cities.

"These men," he set forth, "subscribe to our service."

We will call these three men Dr. A., Dr. B., and Dr. C. Long distance telephone calls were made to each one.

"Yes," said Dr. A., "I signed up the other

day but I didn't exactly know what it was all about."

"Yes," said Dr. B., "I have been in their directory a number of years but to my knowledge it has never brought me a single case."

"I did not subscribe to the directory," said Dr. C., "the salesman was in here a few days ago and explained it, but I didn't like it and I told him so."

When references are given by a salesman, he usually gives the names of his most satisfied customers.

DR. JAMES E. COOPER

Dr. James E. Cooper, fifty-five years of age, died at his home in Cameron, April 15, 1934. Dr. Cooper was hurrying home after hearing that his sick wife had suffered a relapse and was killed when his automobile was struck and demolished by a passenger train.

Born in Greene county, Pennsylvania, and graduated from Waynesburg college, Dr. Cooper settled in Cameron about thirty years ago. Dr. Cooper had many friends throughout the state and was held in the highest esteem.

DR. OAKLEY STITT GRIBBLE

Dr. Oakley Stitt Gribble, Clarksburg, W. Va., died recently at his home in Clarksburg. Dr. Gribble was fifty-eight years of age. He graduated from the University of Maryland in 1904, and has practiced in West Virginia since that time.

Dr. Gribble was a life-long member of the Harrison County Medical Society and of the West Virginia State Medical Association, and was held in the highest esteem by all his friends and associates. A resolution, adopted by the Harrison County Medical Society, reads as follows:

"Whereas, Providence has called one of our honored and beloved members, Dr. O. S. Gribble, and whereas the members of the Harrison County Medical Society feel deeply its sense of loss as well as the loss to the community and medical profession at large. . . . *Be It Resolved*, that the Harrison County Medical Society hopes that the example of Dr. Gribble's kindly manner and high ethical conduct may be an inspiration which shall remain for their guidance."

DR. WILKIN BLACKBURN STEVENS

Dr. Wilkin Blackburn Stevens, aged 56, prominent physician of McDowell County, died March 8, at Coral Gables, Florida, of coronary occlusion. Funeral services were held from his home in Kimball, W. Va., and interment was made in Woodlawn Cemetery, Bluefield, W. Va.

Dr. Stevens was born at Milltown, Alabama, in 1877. He graduated from Maryland Medical College, Baltimore, Md., in 1904, and was a member of the staff of Relay Sanitarium near Baltimore following his graduation. From there he came to Bramwell, W. Va., to take up mining practice. In 1930 the Stevens Clinic Hospital, Welch, W. Va., was opened and he was made the first Medical Director.

The esteem in which Dr. Stevens was held by his confreres is best recognized in a resolution passed by the McDowell County Medical Society immediately following Dr. Stevens' death. "Dr. Wilkin Blackburn Stevens", read the resolution, "practiced his profession with brilliant success and honor. He gave his services willingly to the rich and poor alike, never refusing when called in consultation to give able service with kindness, generosity and charity to all.

"His family, friends and colleagues, and the community at large have sustained an irretrievable loss which only the passage of time can mercifully mitigate."

DR. P. D. ARBOGAST

Dr. P. D. Arbogast, sixty-eight years of age, died at his home in Morgantown, March 31, following a long illness. He was a member of the house of delegates from Monongalia County, a former member of the Monongalia County Medical Society, and the West Virginia State Medical Association.

Dr. Arbogast was born at Boston, W. Va., and graduated from the University of Virginia medical school in 1901. He practiced medicine in Morgantown for 21 years, served as justice of the peace and two terms as mayor of Rurbin. He was elected to the house of delegates from Monongalia county in 1932.

COUNTY SOCIETY NEWS

MONONGALIA COUNTY

The fourth regular meeting of the Monongalia County Medical Society was held at the Country Club, Morgantown, April 3. A dinner was served at 6:00 P. M. after which the meeting was called to order by Dr. B. M. Stout, president.

Dr. A. V. Cadden, Superintendent of Hopemont, was introduced and gave a short talk, followed by Dr. J. L. Blanton, Fairmont, who presented a paper on "Diagnosis and Treatment of Acute Anterior Poliomyelitis," illustrated with lantern slides. This paper was discussed freely.

The scientific program was followed by regular business transactions and report of the Board of Censors. Twenty-seven members and visitors were present at this meeting.

G. R. MAXWELL, *Secretary*.

BROOKE COUNTY

The regular meeting of the Brooke County Medical Society was held Wednesday evening, April 11, at the Elks Club, Wellsburg. After the regular business was dispensed with, a paper was read by Dr. Ray C. Otte, on "Varicsoe Veins, Its Complications and Its Treatment." A general discussion followed.

The next meeting of the society is to be held the second Wednesday in May for the election of officers for the coming year.

RAY C. OTTE, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular meeting on March 21st, with a large number in attendance. Drs. A. H. Hoge and J. E. Blaydes of Bluefield presented the scientific program for the evening. Dr. Blaydes spoke on "The Accessory Nasal Sinuses," and Dr. Hoge discussed the abuses of list practice among doctors and hospitals. Both papers were thrown open for general discussion and questions.

Our meeting in February was honored by two speakers from Charleston. Dr. M. L. Bonar and Dr. P. A. Tuckwiller rendered a scientific program which ended in a "round-table" discussion.

Plans were discussed for the organization of a Woman's Auxiliary to the Logan County Medical Society sometime this year.

C. L. BORDER, *Secretary*.

RALEIGH COUNTY

The regular meeting of the Raleigh County Medical Society was held March 15, at the Black Knight Country Club. A dinner was served to twenty-six members, immediately followed by the business and scientific program. The society had as chief speaker Dr. A. P. Jones, of Roanoke, Virginia, who gave an interesting talk on "Treatment of Incomplete Abortions." Dr. R. G. Broaddus and Dr. D. L. Hill discussed this paper.

Ten new members were admitted to the society. The next meeting is scheduled to be held on May 17.

L. M. HALLORAN, *Secretary*.

CABELL COUNTY

The Cabell County Medical Society held its regular monthly meeting on Thursday, April 12, in Huntington. Dr. Henry Wald Bettman of Cincinnati, presented a paper on "The Diagnosis and Treatment of Duodenal Ulcer." This was a most interesting and instructive paper and was widely discussed by those in attendance in its surgical, medical and röentgenological aspects.

EDWIN MATTHEWS, *Secretary*.

OHIO COUNTY

The Ohio County Medical Society held its regular meeting at the Ohio Valley General Hospital, Wheeling, on March 30th. Dr. Carl H. Lenhart, of the Lakeside Hospital, Cleveland, Ohio, was the scientific essayist for the evening. His subject was "The Pathology and Therapy of Peritonitis," and his discussants were Drs. W. S. Fulton, Edw. M. Phillips, Robert J. Reed, Sr., and D. A. MacGregor, all of Wheeling.

RUSSELL C. BOND, *Secretary*.

LEWIS COUNTY

The regular monthly meeting of the Lewis County Medical Society was held Tuesday, March 13, at the Weston State Hospital.

In accordance with the request of the West Virginia Heart Association, the program was devoted to the subject of the heart, and the following papers were read: "Cardiac Physiology," by Dr. Ralph M. Fisher, and "Myocardial Degeneration," by Dr. Harvey M. Andrew.

An interesting, informal discussion followed the presentation of the papers, both of which were very instructive.

THERESA O. SNAITH, *Secretary*.

PARKERSBURG ACADEMY

The Academy of Medicine of Parkersburg met at the Trinity Parish House, Parkersburg, on April 5th, for their third scientific meeting. Following a dinner at 6:30 p. m., Dr. E. W. Crooks, president, called the meeting to order. Dr. A. Graeme Mitchell, chief of staff of General Hospital at Cincinnati, as the principal speaker, discussed the effects of nephritis, or Bright's disease, in children. His subject, "A Clinician Views Nephritis in Children," described in detail the advanced methods of combating this disease which have effectually reduced the mortality rate in small children.

Many visiting doctors from all parts of the state were in attendance and the meeting was quite an interesting and instructive one.

Welch England, *Secretary.*

KANAWHA COUNTY

The Kanawha County Medical Society held its regular monthly meeting at the Daniel Boone Hotel, Charleston, on March 27th. Following a Dutch Dinner at 6 o'clock at the Hotel, the meeting was called to order by the president, Dr. John W. Moore.

Dr. William Dameshek, of Boston, was the chief essayist at the meeting. His subject was "Primary Hypochromic Anemia (Hypoferrism), A Comparison of Certain Compounds of Iron in the Treatment of Hypochromic Anemia."

A "Blood Clinic" was held at the Charleston General Hospital during the day, to which all of the members were invited.

Andrew E. Amick, *Secretary.*

GRANT, HARDY, HAMPSHIRE, MINERAL

An interesting meeting of the Grant, Hardy, Hampshire, Mineral County Medical Society was held at the Potomac Valley Hospital, Keyser, on Tuesday evening, April 26, with a good attendance.

Speakers for this occasion were Dr. A. E. McClue, State Health Commissioner, Dr. John F. Cadden, State Registrar of Vital Statistics, and Mr. Joe W. Savage, State Secretary of the Association, all of Charleston.

Following the regular program and business meeting, a dutch luncheon was served to the members present by the hospital.

T. C. Giffin, *Secretary.*

CONVENTION PROGRAM

OFFICIAL CALL

To the Officers, Delegates, and Members of the West Virginia State Medical Association:

The Sixty-seventh Annual Meeting of the West Virginia Medical Association will be held at Huntington, West Virginia, with headquarters at the Pritchard Hotel, from Monday, May 14, to Wednesday, May 16, 1934.

The Council will convene at 10 o'clock on the morning of May 14, in room 201.

The House of Delegates will convene at 8 o'clock on the evening of May 14 in the main Ball Room.

The Sections on Surgery, Internal Medicine, Pediatrics and Eye, Ear, Nose and Throat will convene at 1:30 o'clock on the afternoon of May 14.

The General Scientific Assembly will be called to order at 9:30 o'clock on the morning of May 15.

The Annual Address of the President will be delivered on the evening of May 15 in the main Ball Room.

The Annual Election of Officers for 1935 will be held by the House of Delegates immediately following the President's Address on Tuesday evening, May 15.

The Oration on Surgery will be delivered at the general session on Tuesday morning, May 15.

The Oration on Medicine will be delivered at the general session on Wednesday morning, May 16.

The registration department will be open at 10 o'clock on the morning of May 14 and will remain open until 8 o'clock the same evening. Thereafter it will remain open from 8:30 o'clock A. M. until 8:30 o'clock P. M., until the close of the convention.

Respectfully,

Joe W. Savage,
Executive Secretary.

ORDER OF BUSINESS

Council.—For the Council sessions, the order of business will be as follows:

Call to order by Council Chairman.
Reports of Standing Committees.
Reports of Special Committees.
Report of Secretary.
Report of District Councilors.

Auditor's Report.
Unfinished business.
New business.

House of Delegates.—For sessions of the House of Delegates the order of business will be as follows:

Call to order by the President.
Roll call.
Reports of Standing Committees.
Reports of Special Committees.
Report of Secretary.
Unfinished business.
New business.

MONDAY MORNING, MAY 14

Bridge Room, Hotel Pritchard.

The West Virginia Heart Association—10 o'clock

OPENING REMARKS:

President, Oscar B. Biern, M. D., Huntington, W. Va.

SECRETARY'S REPORT:

R. J. Condry, M. D., Elkins, W. Va.

"*Studies in Oscillometry.*"

Alfred Friedlander, M. D., Cincinnati, Ohio.

"*The Evolution of Our Knowledge of Heart Disease.*"

Paul D. White, M. D., Boston, Mass.

Discussion:

Dr. Julien Benjamin, Cincinnati, Ohio.

12:15 p. m. Luncheon at the Hotel Pritchard. Round table discussion on "The Cardiopathic Child." Discussion opened by Dr. Robert A. Lyon, of the Children's Hospital, University of Cincinnati, Cincinnati, Ohio. Reservations for this feature must be made before 11:00 a. m. on May 14.

Visit the Heart Exhibit

SECTION ON INTERNAL MEDICINE

Monday Afternoon, May 14, Ball Room, 1:30 p. m.

Chairman: Dr. G. R. Maxwell, Morgantown.
Secretary: Dr. W. V. Wilkerson, Montgomery.

Agranulocytic Angina.

Dr. R. O. Rogers and Dr. M. W. Sinclair, Bluefield.

Historical resume and description. Discussion of speculative related causative factors. Review of various types of therapeutic control. Report of cases.

Discussion:

Dr. S. L. Cherry, Clarksburg.

Silicosis and Other Pulmonary Conditions Resulting from Inhalation of Dust.

Dr. Albert E. Russell, U. S. Public Health Service, Knoxville, Tenn.

Some dusts are relatively harmless while others produce permanent pulmonary damage. Inhalation of dust predisposes to respiratory infections. Prolonged exposure to silica dust predisposes to tuberculosis. Dust should be removed at its source. When this cannot be accomplished effectively, suitable masks should supplement ventilation in affording protection to the worker.

Common Non-Tuberculous Pulmonary Diseases.

Dr. G. E. Gwinn, Beckley.

Important Mistakes in Cardiovascular Diagnosis

Dr. Paul White, Boston.

Pellagra.

Dr. W. H. Riheldaffer, Lost Creek, W. Va.

Short discussion of diagnosis and treatment of Pellagra with motion pictures of several cases.

Discussion:

Dr. E. B. Wright, Clarksburg.

SECTION ON SURGERY

Monday Afternoon, May 14. Rooms 203-204, 1:30 p. m.

Chairman: Dr. Frank V. Langfitt, Clarksburg.
Secretary: Dr. Russell B. Bailey, Wheeling.

Acute Appendicitis.

Dr. William R. Laird, Montgomery.

Problem of appendicitis as approached from the standpoint of the underlying pathological phenomena with a consideration of the factors involved in the present general mortality rate, and some suggestions as to factors involved in the management of acute appendicitis that are regarded as important in relationship to the mortality rate.

Discussion:

Dr. W. S. Fulton, Wheeling.

Suprapubic Prostatectomy, With Immediate Closure of Bladder. (Improved Method of Postoperative Drainage.)

Dr. H. H. Haynes, Clarksburg.

Discussion:

Dr. Oliver D. Barker, Parkersburg.

X-ray Diagnosis of Intestinal Obstruction.

Dr. W. K. Kalbfleisch, Wheeling.

Intestinal obstruction, acute or chronic, can be diagnosed by means of x-ray examination. A contrast medium is not necessary in acute cases. The x-ray diagnosis can be made before the clinical diagnosis is manifest. In properly taken radiographs the demonstration of fluid levels over distended intestinal loops is absolutely pathognomonic for intestinal obstruction.

Discussion:

Dr. W. R. Hughey, Charleston.

Are We Too Conservative in the Treatment of Head Injuries?

Dr. E. J. Browder, Brooklyn.

An illustrated talk on the treatment of head injuries in general. An attempt is made to point out the conditions where surgery would be beneficial. The talk is based on personal experience with 3000 cases of brain and skull injuries.

EYE, EAR, NOSE AND THROAT SECTION

Monday Afternoon, May 14, Bridge Room, 1:30 P. M.

Chairman: Dr. Harry V. Thomas, Fairmont.

Secretary: Dr. Wm. F. Beckner, Huntington.

Ocular Tuberculosis.

Dr. M. L. Dillon, Charleston.

Tuberculosis as an etiologic factor in obscure chronic eye lesions. Differences of existing opinions relative to merits of tuberculin as a diagnostic and therapeutic measure. Variety of tuberculous eye lesions in patients with active tuberculosis.

Discussion:

Dr. F. J. Hoitash, Huntington.

Some Experiences in Surgery of the Lateral Sinus and Internal Jugular Vein.

Dr. M. F. McCarthy, Cincinnati.

Gives author's experiences in the handling of 52 cases of lateral sinus and internal jugular thrombosis. Does not deal with the cases that have gone through the usual trend of convalescence and recovery but deals with events that were unexpected and could be classed as complications. Paper is designed to make helpful suggestions to those who may have these same complications arise.

Prognosis in Nasal Surgery.

Dr. Ivan Fawcett, Wheeling.

Discussion:

Dr. T. W. Moore, Huntington.

SECTION ON PEDIATRICS

Monday Afternoon, May 14, Room 201, 1:30 P. M.

Chairman: Dr. Robert C. Hood, Clarksburg.

Secretary: Dr. Russell C. Bond, Wheeling.

The Kanawha County Immunization Plan.

Dr. M. F. Petersen, Charleston.

A report of Kanawha County's adaptation of the Vaughan participation plan, limited to Diphtheria immunization.

Discussion:

Dr. W. Byrd Hunter, Huntington.

The Present Status of Personal Immunization.

Dr. W. J. Aycock, Boston.

Discussion:

Dr. Andrew E. Amick, Charleston.

Studies in Immunology.

Dr. C. F. McKhann, Boston.

A resume of the status of immunization against infectious diseases and further studies on the control and modification of measles.

Discussion:

Dr. J. T. Thornton, Wheeling.

School Health Programs.

Dr. Robert C. Hood, Clarksburg.

Discussion:

Dr. J. L. Blanton, Fairmont.

GENERAL SCIENTIFIC ASSEMBLY

Tuesday Morning, May 15, Ball Room, 9:30 o'clock.

CALL TO ORDER

Dr. Roy Ben Miller, President, Parkersburg.

INVOCATION

Reverend A. L. Currie, First Presbyterian Church, Huntington.

ADDRESS OF WELCOME

Dr. W. W. Strange, President, Cabell County Medical Society, Huntington.

RESPONSE

Dr. George F. Hull, Durbin.

Scientific Program

Allergic Problems.

Dr. George M. Lyon, Huntington.

A practical discussion of the clinical aspects of allergy as encountered in every day practice with an appraisal of diagnostic and therapeutic procedure, with a plea for a more rational attitude and practice in this respect by both the specialist and the general practitioner.

Traumatic Lesions of the Spinal Cord and Their Treatment.

Dr. E. J. Browder, Brooklyn.

A study based on 151 cases of fracture or fracture-dislocation of the spine with and without injury to the spinal cord. The methods used in the reduction of fractures are illustrated-observations on the pathological states of the spinal cord following trauma are discussed and illustrated.

Oration on Surgery—The Obstetric Application of Surgical Progress.

Dr. James R. Bloss, Huntington.

Abdominal Pain.

Dr. John W. Moore, Charleston.

More from a medical standpoint. Pains which may be mistaken for acute abdominal conditions requiring surgical treatment.

SCIENTIFIC ASSEMBLY

Tuesday Afternoon, May 15, Ball Room, 2:00 o'clock.

Symposium on Poliomyelitis.

Public Health Aspects of Poliomyelitis.

Dr. W. J. Aycock, Boston.

Clinical Aspects of Poliomyelitis.

Dr. C. F. McKhann, Boston.

The differential diagnosis and treatment in the acute stages of poliomyelitis.

TUESDAY EVENING, MAY 15

8 o'clock — Ball Room

President's Annual Address

Dr. Roy Ben Miller, Parkersburg.

(The election of officers by the House of Delegates will follow the address of the President)

SCIENTIFIC ASSEMBLY

Wednesday Morning, May 16, Ball Room, 9:30 o'clock

Treatment of Benign and Malignant Lesions of the Stomach and Duodenum.

Dr. William B. Morrison, Columbus.

This paper is a resume of the English Literature since 1922 combined with my own surgical experience, postgraduate work in several American centers and in the Clinics of Cologne, Berlin, Vienna and Budapest.

The Problem of the Cross-Eyed Child.

Dr. Luther C. Peter, Philadelphia.

The problem from the standpoint (1) of the child, and (2) of the profession. A brief resume of the etiological factors and the evolution of squint. Outline of the basic principles of treatment. The care of the child in private practice and in public clinics. A hopeful future for the squinting child.

Oration on Medicine—Coronary Disease.

Dr. G. R. Maxwell, Morgantown.

No condition of modern medicine has graver consequences than coronary disease. Many physicians fail to appreciate this and do not study the circulatory system of their patients, and warn them against the dangers of high pressure living. The object of this paper is to keep before the profession this serious condition.

The Psychoneuroses.

Dr. A. L. Osterman, Wheeling.

The three principal types of psychoneuroses will be described, namely (1) neurasthenia, (2) psychasthenia, and (3) hysteria. Case illustrations will be given. Present day views with references to causation of these states, especially Freud's, will be presented. Dreams, and their relation to the psychoneuroses will be discussed.

The Study and Treatment of Chronic Arthritis.

Dr. Russell Haden, Cleveland.

(1) Clinical and pathologic classification of arthritis, (2) differentiation of types, and (3) treatment of arthritis.

SCIENTIFIC ASSEMBLY

Wednesday Afternoon, May 16, Ball Room, 2:00 P. M.

ADDRESS—*Medical Service; A Professional Service.*

Dr. Olin West, Chicago.

Secretary and General Manager, American Medical Association.

Clinic at Veterans' Hospital, 3 P. M., conducted by Dr. Russell Haden, Cleveland Clinic, Cleveland, Ohio. (Transportation will be furnished.)

ANNUAL CONVENTION FESTIVITIES

Wednesday Evening, May 16

DINNER DANCE—FLOOR SHOW

HOTEL PRITCHARD BALLROOM

7 until 1 o'clock.

Master of Ceremonies—Dr. Oscar B. Biern, Huntington.

THE SCIENTIFIC ESSAYISTS

Out-of-state speakers who will appear on the scientific program at Huntington on May 14 to 16 are listed below in the order of their appearance:

Dr. Alfred Friedlander, Cincinnati, Ohio.
Dr. Paul D. White, Boston, Mass.
Dr. Julien Benjamin, Cincinnati, Ohio.
Dr. Robert A. Lyon, Cincinnati, Ohio.
Dr. Albert E. Russell, Knoxville, Tenn.
Dr. E. J. Browder, Brooklyn, N. Y.
Dr. M. F. McCarthy, Cincinnati, Ohio.
Dr. W. J. Aycock, Boston, Mass.
Dr. C. F. McKhann, Boston, Mass.
Dr. Wm. B. Morrison, Columbus, Ohio.
Dr. Luther C. Peter, Philadelphia, Pa.
Dr. Russell Haden, Cleveland, Ohio.
Dr. Olin West, Chicago, Illinois.

The members of the Association who are scheduled to present scientific papers on the Huntington program follow:

Dr. R. O. Rogers and Dr. M. W. Sinclair, Bluefield.
Dr. G. E. Gwinn, Beckley.
Dr. W. H. Riheldaffer, Lost Creek.
Dr. Wm. R. Laird, Montgomery.
Dr. H. H. Haynes, Clarksburg.
Dr. W. K. Kalbfleisch, Wheeling.
Dr. M. L. Dillon, Charleston.
Dr. Ivan Fawcett, Wheeling.
Dr. M. F. Petersen, Charleston.
Dr. Robert C. Hood, Clarksburg.
Dr. George M. Lyon, Huntington.
Dr. James R. Bloss, Huntington, (Oration on Surgery).
Dr. John W. Moore, Charleston.
Dr. Roy Ben Miller, (President's Address).
Dr. G. R. Maxwell, Morgantown, (Oration on Medicine).
Dr. A. L. Osterman, Wheeling.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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PRESIDENT'S ANNUAL ADDRESS*

By ROY BEN MILLER, M. D.
Parkersburg, W. Va.

ON February 28, 1867, Dr. John E. Reeves of Fairmont, West Virginia, sent out a circular, written in long-hand, to the medical profession of this state. The circular read as follows:

GENTLEMEN—

As a means of elevating the standard of practical medicine and surgery in West Virginia—and to render quackery odious as it deserves, the want of state medical organization is severely felt by all true cultivators of our noble science within the limits of the state.

In West Virginia the profession is at many points adorned by one or more active, intelligent members who, by their industry and devotion to science, have made for themselves a name outside of their fields of labor; and there are others too, of modest talent, scattered here and there, who but require the contact and association which a proper organization would so surely effect, to develop latent powers and capabilities of great credit to themselves individually and beneficial in the highest degree to their patients, and the commonwealth of medicine.

There is much labor to be performed by the profession in West Virginia before it can reach the standard of respectability which is its legitimate inheritance in some of the sister states. Disease and death do not relax their hold in favor of our mountains and valleys. On the contrary some of these are the very stronghold of the enemy; and before his ravages can be stayed, the inhabitants must be taught the laws of hygiene and be able to mark the difference existing between the true and the false —the intelligent physician and the murderous pretender who is everywhere present with the murder of his ignoble science. These important lessons none but competent medical men can teach; and it is high time they should begin the noble work of giving life and health to the people and respectability to themselves.

Organization would necessitate interchange of opinion on subjects connected with the different branches of the profession; and besides the profit and pleasure of regular communications, habits of closer study and more patient investigation would be encouraged; the demand for classic and periodical literature largely increased—and these would be the signs of an improved status.

To accomplish all these excellent ends, it is proposed to organize a State Medical Society, and in order to formally initiate the movement, the undersigned have, upon consultation, agreed to issue this call for a convention to assemble in Fairmont on the 20th day of March next. The call is urged upon all members of the regular profession, and their presence in the proposed convention is earnestly solicited. A full attendance is desired, not

*Delivered before the W. Va. State Medical Association at Huntington on May 15, 1934.

only on account of the interest connected with the organization of the state society, but also because the American Medical Association will meet in Cincinnati early in May, and the profession in this state should be represented in it, in accordance with the expressed desire of the Association.

This call was signed by Dr. Thomas Kennedy of Grafton, Dr. H. W. Brock of Morgantown, Dr. John C. Hupp of Wheeling, Dr. E. A. Hildreth of Wheeling, Dr. R. H. Cummins of Wheeling, Dr. W. J. Bates of Wheeling, Dr. A. S. Todd of Wheeling, Dr. John Frizzell of Wheeling, Dr. J. M. Blackford of Clarksburg, Dr. I. M. Bowcock of Clarksburg, Dr. James E. Reeves of Fairmont, Dr. David S. Rinnell of Upshur county, Dr. George A. Cracraft of Triadelphia, Dr. John M. Stoner of Triadelphia, Dr. James Cummins of Wheeling, and one other distinguished medical pioneer whose name could not be deciphered.

Thus began this Association which is meeting today for its sixty-seventh annual gathering. At Fairmont in 1867 this Association was formed by a handful of earnest and sincere physicians who had the vision to look forward and realize the advantages of organization. During the next two years, at Wheeling and at Grafton, their organization was perfected into a living, thriving medical association. The first fruits of their organization, in those early days, came in the form of free tickets from the Baltimore and Ohio railroad to all members traveling to and from the convention city.

If organized medicine was a good thing in 1867, it is a godsend today. During the past sixty-seven years this Association has steadily pushed forward to better things until today, with scientific and economic problems confronting us on every hand, we have a strong and dependable union of purpose that protects us from the onslaughts of alien interests.

Sometime ago, in a current medical journal, appeared the following, from which I quote in part:

"After a gestation period of five years, the widely heralded and mountainous Committee on the Costs of Medical Care brought forth, not long ago, a preconceived mouse of socialistic medicine.

"Socialism may be all right. No one knows, for no nation has actually had the altruism and intestinal fortitude to employ, in a thorough-going manner, this particular scheme of living and governing. The possible exception is Russia, and her present status might be described as a sad mess without any crust. If, as is doubtful, the country of the Bear is a fair example of what a socialized state must be, it seems improbable that the American people would pass their plate for a second helping of such a concoction—or even accept a first helping, for that matter."

Should we ever scrap the Constitution and go in for a complete socialistic regime, the medical profession would, of course, be dumped into the *olla podrida* along with the rest; but American physicians who have the knowledge and vision to see things as they are, will fight to the last ditch to prevent the isolated politicalization of medical practice, under the euphemistic disguise of providing adequate care for the man of small means.

Too many people have the impression that every man, woman and child is entitled to the very best grade of medical care—all silk and trimmed with hand-made lace — no matter what his economic status may be. And this in spite of the fact that they do not feel that a man with a beer pocketbook is entitled to champagne.

On the other hand, those who are constitutionally unable to learn anything by experience, seem to *feel*, because they do not *think*, that, if the government takes over a job, it will be done well—in the present instance, that a hard-shelled mossback of a practitioner can be magically transmitted into a clinical marvel by the thaumaturgic touch of a government subsidy.

Let us grant, for the sake of the argument, that every citizen is entitled to medical attendance. But is there anyone who expects the grocer, the tailor and the landlord to furnish him food, clothing and shelter "without

money and without price"? And yet there are many who *expect* physicians to dispense their capital stock, i.e., their expensive medical education—on that basis, and thousands of doctors are *doing* it, to the detriment of themselves and of their confreres.

The idea that enterprises undertaken by the government are more likely to be carried to a satisfactory conclusion than those engineered by private persons or groups, does not work out in real life. Such a belief was doubtless originated by some one who had a reason for rationalizing fallacious notions. As a matter of fact, most efforts entered into by governmental agencies are carried out more expensively and ofttimes less efficiently than if completed by private firms. Any doubter needs only to study the records of the conduct of the War, the Shipping Board and the Farm Board, or almost any enterprise in which the federal, state or municipal governments are engaged.

And that does not place us in a position of invidious isolation. We have several excellent object lessions in how socialized medicine works in the countries of Europe. If the medical practitioners of the United States, or any considerable part of them, would really *study* the conditions mentioned, the situation would rouse them from the Rip Van Winkle lethargy affecting the majority as evidenced by their handing over the profession to the politicians by default. Careful study would make real fighters of the rank and file.

From the standpoint of the physician, the only ones who would be benefited by politicalized medicine would be those whose professional services have never been regarded as of particular value.

The only patients who would be better pleased would be those who have been accustomed to the most sketchy medical service or none at all and who *might* get mediocre attention.

Who, then, would benefit? Why, the *politicians,* who would have hundreds of millions of extra tax dollars passing through their hands, out of which they would take a big, juicy cut!

Note that reference to "tax dollars" and remember that, however it may look to people who never think, we receive *nothing* free from the government. On the contrary, we pay for everything that comes from that source, in the form of taxes, and usually far more than it is intrinsically worth.

This does not mean that we advocate putting government into the ash can. We desire to see it improved. In our complex modern society there are many things that the individual citizen *cannot* do for himself. These constitute the legitimate field of governmental activity. It is only when the authorities go outside that field, that we protest they are steering us upon the dangerous shoals of paternalistic bureauocracy.

The fine relationship between a physician and his patient, is one of the most intimate and personal associations imaginable, and until the human race degenerates into robots, whose "parts" can readily be removed and replaced by new "spares", medical practice can never be arranged on a mass production basis without losing most of the elements which make it valuable and satisfying to a majority of normally-constituted people.

Do you recall the Utopia of Bellamy's "Looking Backward"? There money is no more and every man's active years are conscripted by the government, in return for enough "goods" to permit each to live fully. If that time comes, the doctors will fall into step with the procession as cheerfully as anyone.

Until then, if they have the sense God gave geese, they will rear up on their nether extremities and *fight* to prevent the exploitation of a noble profession by a crew of politicians, masquerading as philanthropists, whose eyes are fixed exclusively upon the "Main Chance."

Many times have I heard the language of pessimism within our ranks. Since becoming your state president, doctors have many times

called to my attention the medical utopias of other states.

"Look what Illinois is doing, see how Michigan is handling the public health problem, look how New York is going after her illegal practitioners. Why doesn't our Association do something? Why does our Association take a back seat while all these other states are making such wonderful progress?"

My friends, if you will talk intimately with the pessimists of Illinois or Michigan or New York or any other state society, you will hear the same misguided blessings heaped upon Utah or Indiana or Texas or West Virginia. It is a common earmark of the knocker to praise all that pertains to the outside and to condemn all that is nearest and dearest to his own heart. In support of this assertion, let us look for a brief instant upon just a few of the accomplishments of the Association during the past few years.

Perhaps it has not occurred to some of you that West Virginia has one of the best medical practice acts in the United States. Has it occurred to you that year after year strenuous efforts are made to break down and destroy our medical practice act. It is true that certain changes would be advantageous, but our big job is to protect that which we have fought for these many years. If we can secure advantageous changes from time to time, well and good. But don't look for these much talked of corrections in a month, or a year, but remember that we have carried the torch of medical attainment for 67 years in West Virginia and you will grow less petulant in your cry for 24 hour service.

The legislative desires of this Association occupy only a small background in the complete picture of our objectives. Let us dwell for a minute upon some of these objectives that have been accomplished.

Practically all of you are familiar with the Sloan-Mitchell decision of our State Supreme Court which the Journal of the American Medical Association hailed as one of the most far-reaching and important legal victories ever won by the medical profession. This victory was won by organized medicine; the laurels of victory going first to the Cabell County Medical Society and second to the State Association which backed them.

Less familiar is the Wyoming county case which established that lay testimony in a malpractice action could prove the act of malpractice itself. Had our Association not carried this case to the supreme court and had that decision altered, our plight today would be a sorry one.

You are familiar with the Association's recent work in taking over and controlling, through the county societies, the emergency medical aid rendered under the Unemployment Relief Administration. You are familiar with the much-discussed discretionary allowance which makes it possible for a doctor to collect for his actual services in unusual cases, rather than follow the routine fee schedule which was agreed upon for routine services. So far as I know, West Virginia is the only state in the Union which employs such an arrangement.

Less familiar is the case against the Valley Camp Coal Company for racketeering upon their company doctors. When our Association entered the arena in protest of this assault upon the incomes of our camp doctors, the defendant promptly ran to cover and ceased the practice which we were seeking to restrain.

More familiar is the effort put forth by our Association to promote and advance the attainment and welfare of our state institutions caring for the sick. Of all the objectives of our Association, this one appears the finest and the most altruistic. Unless I am sadly mistaken, we will all live to see the day when these institutions are removed from politics and their management and control placed under a competent medical board. Through public education we have advanced much further in this direction than many of you realize.

I think all of you recognize the value, although you sometimes lost sight of it, of maintaining our identity through a perman-

ent headquarters in our Capitol City. The routine services of our headquarters office are too numerous to mention. It is sufficient to say that our affairs are ably and efficiently handled and that our financial strength has grown consistently and steadily since we lost all our money when we handled it for ourselves.

As for our JOURNAL, we believe we have one of the finest state medical journals in the United States. It not only fulfills our needs for medical expression and education and keeps our members in close touch with the State Association but, under the excellent management of the editorial board and the executive secretary, it has been a splendid financial success. Our JOURNAL continued to show a profit throughout the depression while neighboring state journals on every hand were losing money.

So much for the past. The immediate future presents a problem of serious mein; a lot meaner than it is serious. I refer to list hospital practice. It is a ghost-like spectre that is causing too many of us to hide behind the tombstones of mistrust. There should be no mistrust and no fears so far as list practice is concerned. We should not cast leering glances at our confreres and wonder by what ulterior motives they are guided. List practice is only sinister because we all have a tendency to be afraid of it and consider it unethical.

Because list practice has not reached the confines of my own county medical society, I feel that I am able to consider it without much prejudice. In any study of list practice, three factors must be considered. First, the list patients. Second, the medical profession. Third, the hospitals. I think we are all too prone to lose sight of the most important of these three; namely the *patients* themselves.

If this problem of list hospital practice concerned only the medical profession, I, for one, would be bitterly opposed to it. But it concerns the economic structure of a vast group which we must consider whether we want to or not. So long as we do not consider this group, we will continue to butt our heads into the same stone wall which has stopped us so many times before.

List hospital practice is bad for the medical profession. It is a fair arrangement for the hospitals. It is a blessing to the lower class wage earners who use it. Now, if we are to strike out against list hospital practice, how is the best way to go about it.

First we must realize that list hospital practice has flourished in Southern West Virginia for about 30 or more years and, not so many years ago, it was popular and in good repute. Although many of us might like to stamp out list hospital practice with one majestic stamp of an iron heel, it just cannot be done that way. We can't tear down overnight what it has taken a quarter of a century to build up. Why can we not tear it down overnight? Because it affects too many people!

My thought, and my plea to this Association, is to work on this great problem from a constructive rather than a destructive point of view. The major fault which we find with list hospital practice is the provision which includes compensible injuries in the list itself. That provision makes it impossible for a doctor to collect for honest services rendered to an injured employee. Now, if that is our major complaint, let us work on the problem from that standpoint. Let us direct our efforts toward correcting that evil. Perhaps when that evil is corrected, the entire problem will solve itself. If not, then we will be ready for our next step. Remember that evolution got us into list practice and evolution is the only thing that will get us out.

When we talk of correcting our evils, we are prone to consider the West Virginia legislature as our battleground. Personally I have never been sold on the idea of legislative battles. I think the legislature should be our last resort, rather than our first. We should endeavor to straighten out our own difficulties with those with whom we disagree, rather

than ask the legislature to fight our battles for us.

I have purposely avoided any discussion of the merits or demerits of list hospital practice. That is an old story and you don't want to hear it again. It is sufficient for me to say that I, personally, dislike list hospital practice from the standpoint of my chosen profession. I particularly dislike list practice as it concerns the status of compensible injuries. I, like many of you, want to see a new deal. Let us go after this new deal in a constructive and statesmanlike way. Instead of discrediting the list hospitals, let us remember that they, like ourselves, are trying to protect their interests. Instead of gnashing our teeth at the wickedness of industry, let us remember that industry, like the medical profession, is trying to keep its head above water.

One parting thought and then I am through with the subject of list hospital practice. We are not interested in list hospital practice as it concerns the hospitals, but only as it concerns and involves the medical profession. If hospitals solicit business, if they underbid each other for list contracts, if they make money or lose money, that is their affair and not ours. If they render inadequate service to our patients, if they engage in the corporate practice of medicine, if they knock the medical profession out of compensation injury cases, then that is our affair. I hope you will remember these distinctions in future consideration of this subject.

With these few comments, we pass the subject of list practice on to the will of this Association. Regardless of what my personal feelings on the subject might be, I can assure you gentlemen that I will endeavor to carry out your wishes, whatever they are, to the best of my ability. With me, your will is law.

There has been some comment this year on the prospect of reducing our state dues. I think the state dues should be neither reduced nor raised. The annual fee which we pay into the support of organized medicine in West Virginia is adequate to meet practically all of our demands. Each year we have a small surplus left over to set aside for future unexpected needs. If we reduced this annual fee, we would upset what has heretofore proven satisfactory. At the present time our financial integrity is beyond question. We have a strong, splendid organization that is functioning every day of the year for our welfare. The sum of $10 might be considered a large amount to lose in a family bridge game, but it is a small amount to contribute toward the support and protection of the profession which we have chosen to follow. Ten dollars a year is adequate for our needs; neither too much nor too little. I hope we will not tamper with our financial machinery when it is operating so smoothly.

I think the prospect of spending our money for a permanent home in Charleston has had considerable to do with the talk of reducing the state dues. I would like to say that the permanent home project is now definitely out of the picture. The project itself depended upon the proposed purchase of an ideal club building in Charleston which was scheduled for public sale. Had this building been put up at public auction, the Council would have been called in to decide whether we should bid on it and, if so, to what extent. Some months ago, however, the owners of this building were able to refinance and retain possession of their own cherished home. Since that time our permanent home committee has disbanded and the entire project given up. In the years to come, I hope that some day this Association may own a permanent home in our Capitol City, but until our treasury is many times larger than it is at present, I feel, like many of you, we should forego all dreams of this objective. No, my friends, we are not going to buy a permanent home with your funds until you, until all of you, demand it. Our financial strength means so much more to us at the present time.

Looking forward to the future I would

like to recommend that this Association begin to consider the advisability of:

1. Placing the medical supervision of the various state hospitals caring for the sick, under direction of the Public Health Council of West Virginia.

2. Place the licensing of all West Virginia hospitals under the Public Health Council.

3. Endeavoring to bring all medical appointments within the state under some phase of civil service.

4. Providing some method of post-graduate work in obstetrics to reach into our isolated rural districts in an effort to reduce our maternal and infant death rate in West Virginia.

5. At the present time, it seems to be necessary in the rural districts, especially among the poor, to have the services of a so-called midwife. A great many of these are not equipped and have very little, if any, idea of asepsis. Too often when a midwife gets into serious difficulties, she calls in a physician who gets credit for the death. We hope the time will come when this condition will not prevail.

6. At the present time our tubercular institutions at Hopemont and Beckley, which are doing such wonderful good, are handicapped by lack of sufficient beds. We hope, in the not too distant future, that the state of West Virginia may be able to provide adequate care for all of her victims of this dread disease.

7. Many physicians have talked to me about the health officers. I believe in them. I think each county should have a health officer, but I believe he should confine himself to sanitation and prevention of epidemics, quarantine, etc., and not enter into the practice of medicine promiscuously, with wholesale vaccination and the use of preventive serums. He should not prescribe for babies and children at the various baby clinics and social agencies, but should refer that work to the family physician.

8. There has been considerable dissatisfaction in some parts of the state over the activities of school physicians. I recommend in such cases that the county medical society interest itself in working out a satisfactory solution of this problem. Satisfactory solutions have been worked out by many of the more wide-awake societies.

9. I am opposed to the present arrangement of treating the poor by the appointment of one physician in a city or county who is paid an inadequate salary for this work. I believe it would be more satisfactory, with very little more expense, to allow the family free choice of physician and have the physicians paid a reasonable rate for their services by the county court or city administration.

10. To continue to follow in the footsteps of our illustrious predecessors who have placed this organization in our hands after 67 years of medical progress in this great state.

In closing I simply wish to thank you again for your trust and faith in giving me the highest office within your command. Thus far my term as President has been both pleasant and happy. I have given much of my time and thought in an effort to promote the welfare of your organization, and to further your interests and desires. I still have more than half of my term before me. My greatest hope is that you will continue the wonderful support and coöperation during the next seven months that you have given during the past five. As for myself, I will continue to give the best I have, humble though that may be.

PROPER HEALTH SUPERVISION

After studying the athletes from ten colleges over a period of years after their graduation, the investigators from an insurance company were disappointed because they did not find that athletes and former athletes were always the healthiest men of the nation. They found that over-indulgence in athletics, especially when not supervised by trained medical men, had a marked effect on the heart.

"The results of these investigations should be taken seriously," Alfred E. Parker says in "Training for Athletics and Health in the April *Hygeia.*

SOME PERSONAL EXPERIENCES IN GALL BLADDER SURGERY*

(A Report on 674 Operative Gall Bladder Cases)

By JOHN E. CANNADAY, M. D.
Charleston, W. Va.

SURGERY of the gall-bladder, so far as now known, is comparatively modern. Teckof removed the gall-bladder of a dog in 1667. This work was repeated by Ettmueller in 1670. Petit performed the first cholecystotomy in 1743. Recamier first drained the gall-bladder successfully in 1826. He did not repeat this operation until 1849. Sims published the first report on cholecystotomy in 1878 in a case operated on by him. Previous to this date the operation had been routinely rendered extraperitoneal by reason of adhesions artificially created by the surgeon. After Sim's report, numerous surgeons reported variations of cholecystotomy and cholecystostomy up until the memorable surgical operation of cholecystectomy, which was performed in 1882 by Carl Langenbuch. He reasoned that as some human beings had been born without gall-bladders and as elephants and horses do not naturally possess this organ, the removal of the gall-bladder in man should not be injurious. His patient survived.

The subject of gall-bladder disease always reminds me of one of the favorite witticisms of the late respected, admired and lamented John B. Deaver of Philadelphia. Those who have visited his clinic will recall that he kept up a running fire of wit and badinage that apparently kept everyone, himself included, amused. When dealing with gall-bladder cases, he would often say, "If you want to have gall stones lead a model life, sit at home in the evenings and hold your dearie's hand and you will be pretty apt to wake up some night with a fine attack of gall-bladder colic. But if you want to avoid gall stones, get out, roister around with the boys and have a wonderful time, come in about 3 a. m., and you will escape them."

Certainly the incidence of gall stones is sufficiently great to cause all of us concern. Few if any other ailments can provide more punishment to the square inch than an attack of gall-bladder colic.

Etiology: Age—More apt to come on in middle life, although a number of cases have been reported as occurring in early infancy, babies have been born with gall stones. These cases, of course, are quite rare and even gall stones in children are uncommon. However, I have seen three cases, operated on in the early teens.

Sex: Women undoubtedly in many instances develop gall stones during the first or second pregnancy. Likewise the sedentary habits of many women greatly predispose to cholesterol deposits in the gall-bladder. Many women put on flesh at a rather alarming rate early in life; again the formation of gall stones is greatly favored by obesity.

Occupation: Affects, most of all, individuals of sedentary habits, office men and women who are not particularly active. The rather short, stocky individual who does not get a great deal of active physical exercise seems peculiarly predisposed to this trouble. It has been my fortune to do a great deal of surgery for coal miners, lumbermen and other men who habitually perform heavy manual labor. I have observed for many years that the man who works regularly at arduous labor with axe, pick or shovel, quite seldom develops gall-bladder disease.

Disturbances in Body Metabolism undoubtedly play an important rôle in the formation

*Read before the Central West Virginia Medical Society, Webster Springs, W. Va., July 19, 1933.

of gall stones in many cases; particularly does this apply to the cholesterol type of stones.

Stasis: Many are firmly convinced that bile stasis plays a very large part in the formation of stones. Therefore, we would conclude that vigorous physical exercise is a most pertinent and practical means of preventing their formation.

Effect of Alcohol: Some of the European pathologists in particular have observed that chronic alcoholics do not have gall stones. Some of them have advanced the theory that this may be in part due to the fact that cholesterol, which is the basis of the majority of gall stones, is easily soluble in dilute solutions of alcohol. It would seem that such a price to pay for immunity would be quite expensive.

Diet: It is believed by some that people who overeat are more prone to this trouble. Certainly those who consume fats in large quantities might be expected to produce correspondingly large amounts of cholesterol for the liver to deal with.

Race: Pure-blooded negroes have a low incidence of gall-bladder disease. Even mulattoes are not so prone to gall-bladder disease as are the whites.

Climate: Surgeons who have practiced in the south of China, state that the incidence of gall stones there is not only much greater than in other parts of the world but it is most common at operation to find both the common and hepatic ducts choked with stones and not infrequently they have reported that not only the common, but the hepatic ducts as well are so large and dilated as to admit easily the exploring finger of the surgeon.

Pathology: There are two general types of gall stones, the cholesterol stones which may be formed as a result of stasis and the bilirubin-calcium phosphate types which are presumably the result of infection.

As to the reason why some stones are very small and faceted, others mulberry shaped, others very few in number and large, will perhaps never be entirely known. Probably the large stones are older, but that is not entirely certain.

Fortunately, stones most commonly form in the gall-bladder, although it has been noted by many that considerable numbers do form not only in the common duct but in the hepatic ducts and their branches as well. However, there is quite a little difference of opinion in regard to these matters, a few pathologists having reported as many as one in ten cases of gall-bladder stones, showing them somewhere in the ducts as well. However, the majority of surgeons, I believe, are of the opinion that the incidence of stones in the common and hepatic ducts is not nearly so great.

Intestinal parasites of various kinds may enter the portal of the common and the cystic ducts and carry infection into the common duct or the gall-bladder sufficient to bring about an attack of cholecystitis which may be succeeded by crops of stones. Then too, it may be that the valve of the ampulla does not always function just as nature intended it, and therefore may not always shut off ascending infection from the bowel. We have protective valves at various gateways of the body such as the valve between the cecum and small bowel which certainly functions much better in some individuals than others. Likewise the valves at the bladder end of the ureters in some cases apparently not the subject of disease may at times allow a reflux movement of bladder fluids under certain conditions.

History: Apparently at times the symptoms are ignored or overlooked by the patient. We have all heard the expression "symptomless gall stones." Usually, however, they are clear and definite. A history of chronic indigestion and right upper abdominal discomfort is usually obtainable in the mildest cases. Right here it might be well to bear in mind that apparently what constitutes a great discomfort in one person may be considered a very minor discomfort by another. Moynihan and others have called attention to the patient complaining of slight chilly sensations and

shivers, particularly when he or she gets up from the table after eating. The general symptoms are too well known to discuss at length. The usual attack of gall-bladder colic with its attendant nausea, its location, followed sometimes by relief after vomiting, is so characteristic and outstanding that the patient often makes the diagnosis. I am inclined to think that the public is becoming "gall-bladder conscious" just as it has for a long time past been "appendicitis conscious" and often does not wait for the doctor to make the diagnosis. Of course, the advanced, infected cases, the subjects of chronic cholangitis and hepatitis, develop quite a train of symptoms such as fever, chills and hepatic tenderness which are quite unmistakable in their significance. Occasionally there are atypical cases with varying symptoms such as were observed in a patient of mine who had suffered from attacks of gall-bladder disease for very many years and who always located the pain on the left side of the epigastrium. However, the case was so outstanding and characteristic otherwise that I felt no hesitancy about the diagnosis, neither did I believe that there was a transposition of the viscera. In another case the most outstanding symptom was a chronic diarrhea which was entirely relieved by the removal of a gall-bladder packed with stones, apparently of long standing.

Diagnosis: The clinical history first and foremost plus the symptoms will be sufficient in nearly all cases. There are some more or less borderline atypical cases in which the x-ray examination is of very pronounced diagnostic value. The differential diagnosis between coronary disease, pyloric and duodenal ulcer, malignant disease and gall stones must be given due consideration. The symptom of painless jaundice is one that is often most difficult to evaluate properly.

Complications: Long continued chronic gall-bladder or biliary duct disease may ultimately lead to:

(a) Cancer from long continued irritation.
(b) Biliary cirrhosis.
(c) Jaundice.
(d) Acute or chronic hepatitis.
(e) Gangrene of the gall-bladder.
(f) Perforation of the gall-bladder.
(g) Hepatic insufficiency.
(h) Empyema.
(i) Gastric or duodenal hemorrhage.

Long continued irritation and the presence of a stone or repeated attacks of cholecystitis may unquestionably cause cancer. The incidence of cancer from this, however, I do not believe to be large. A good many pathologists have placed the incidence of malignancy as high as 3% of actual gall-bladder cases. Biliary cirrhosis, of course, is uniformly fatal and once established nothing can be done to stop it. A fairly painless death from toxemia and exhaustion usually ensues. Jaundice, by the constant admixture of bile with the blood and lymph, slowly but surely saps the patient's strength and health.

Gangrene of the gall-bladder may place the patient's life in the utmost jeopardy on short notice. Perforation or rupture with ensuing bile peritonitis may readily ensue. Generally, even should such a calamity befall the patient, the resulting disturbance is well localized. Quick decision and a prompt operation are necessary to save the patient's life. The chronic infection incident to the disease process will ultimately undermine the patient's health and vitality and render any operative treatment extremely hazardous. This last condition, commonly termed hepatic insufficiency is certainly one of the most potent causes of the mortality incident to gall-bladder operations.

Empyema of the gall-bladder may lead to a general sepsis or pyemia from which there is often no recall.

Gastric or duodenal hemorrhage, these most unusual complications do happen with sufficient frequency to give us pause. I know of nothing more striking and dramatic than a case of chronic gastric or duodenal bleeding that is terminated by the removal of gall stones and drainage or by removal of the gall-bladder.

Treatment: Time was when some people thought that cholecystitis with or without gall stones could be adequately treated by medical means, such as "internal drainage of the gall-bladder," the ingestion of olive oil, etc. Internal drainage via a Lyon tube is a most uncomfortable way to administer the time-honored laxative, the last a method of treatment probably well known to Lord Byron who said, "Nothing clears the mind like a dose of salts."

Certainly the lumen of the common duct is so very small and the duct itself is so torturous that it is highly improbable that any stone much larger than a mustard seed would be at all likely to get through. The stones that some people are thought to have passed are often some imitation elaborated in the intestinal tract — the larger stones do at times, of course, come away after some crude operation on the part of nature. For instance, when the gall-bladder becomes necrosed, then adheres to either the large or small bowel, finally perforating through and discharging its contents.

I believe that the treatment of gall-bladder disease should be on the same footing as the treatment of appendicitis and that it is unquestionably surgical.

The chronic cases are a constant source of reflex annoyance and irritation to the patient and should be dealt with relatively early in order to head off, if possible, the generalized infection of the liver, the formation of stones in the ducts, hepatic insufficiency, and other complications that are known to follow in the train of prolonged bile tract infection.

Surgical Treatment: The method most to be preferred is the removal of the gall-bladder in toto, if the patient's physical condition will warrant the procedure. Second, in event that the condition is debatable, not quite good enough to warrant cholecystectomy, but perhaps too good to consider removal of the stones and mere drainage of the gall-bladder, partial cholecystectomy is at times advisable. In such cases the anterior wall of the gall-bladder may be removed, leaving a posterior strip of gall-bladder adherent in its bed to the liver. The patient is spared some of the dangers of hemorrhage, toxic absorption, bacterial invasion and incidentally operative shock is lessened.

If the patient's condition is still more grave the gall-bladder should be opened, the stones removed and drainage instituted. In very grave cases this may be done under local anesthesia. At times drainage for various reasons, may be unduly prolonged, at times over a period of years. One case I have in mind, maintained good health in conjunction with external biliary drainage for more than twenty years, until death in the 93rd year; another, now for three years past, is a man of 68, who continues in good health in spite of the extrusion of a stone from time to time via the drainage sinus which in both cases above mentioned has been kept open by catheter drainage. The so-called ideal cholecystotomy advocated by some, several years ago, in the course of which the stones were removed and the gall-bladder closed, probably has no proper place in the treatment of gall stone disease, as the stones nearly always recurred in such cases.

A case of simple, acute cholecystitis may be able to wait and be tided over numerous attacks. However, with each attack more damage is done to the liver and the patient is less able to resist future waves of infection. Increased density and multiplicity of adhesions about the gall-bladder and ducts render final operative treatment more difficult. The cases that develop gangrene or perforation naturally constitute the gravest emergencies.

Technique of Operation: Formerly much discussion raged about the subject of drainage following removal of the gall-bladder; to drain or not to drain was the much debated question. At the present time many surgeons have followed the general trend and I feel safe in saying that the practice now most generally observed is about the same as that usually carried out in dealing with appendicitis—making the use of drainage in some cases but leaving it out in most.

Peritonization: Accurate hemostasis followed by peritonization of all raw surfaces is of paramount importance. This peritonization may be accomplished in various ways, such as:

(a) Suture of the incised edges of the liver serosa. The parietal peritoneum can often be sutured over the amputated cystic stump and adjacent raw areas.

(b) The suture of a free flap of omentum in such position as to peritonize all raw surfaces. This takes as a perfect graft and is a relatively absolute safeguard against the formation of crippling adhesions. I have carried out this technique with satisfactory results in a number of cases.

(c) The application of a flap of gastro-hepatic omentum which is sometimes large enough and conveniently placed to cover all raw surfaces.

(d) The protection of all raw surfaces in part or together by turning up a flap of nearby omentum and fixing it in place under the liver by one or more sutures so that it will not readily become detached.

Again I wish to repeat that adequate and thorough peritonization is of primary importance and should never be slighted. Many of the cases that come to operation the second time are found to have vicious adhesions of the pylorus or the duodenum, more especially the latter, to the under surface of the liver. The delicately adjusted and perfectly synchronized functions of the upper gastro-intestinal tract are thrown out of balance and chronic invalidism often results.

Exploration of the Common and Hepatic Ducts: Certain portions of those ducts can be readily palpated between the thumb and finger and if they are felt to be dilated or there are other indications of stones present, they should certainly be explored and the detritus of stones, bile-sand, etc., removed as thoroughly as possible by suction, forcep or curet. This procedure should generally be followed by drainage of the ducts incised.

The following criteria for the exploration of the common and hepatic ducts have been listed by Lahey and others: (1) Whenever on palpation one can, or suspects that he can feel a stone in the duct; (2) when the common duct is dilated and when the common duct is definitely thickened. The longer infection and stones have been present in the gall-bladder the more frequently will stones be found in the common and hepatic ducts, for which reason the ducts should be opened and searched for stones whenever the gall-bladder is found thickened or contracted. Thickening of the head of the pancreas from whatever the cause makes palpation of the lower end of the duct for stones uncertain and unreliable. In such cases, also, it is believed that the common duct should be opened and its lower end explored; (3) It is obvious that the duct should be opened and explored in all patients with gall stones who are, or have been, jaundiced.

My personal observation is that the majority of American surgeons are not inclined to open the ducts unless they are reasonably sure that they contain calculi. The general teaching of many of the European surgeons, more especially the German school, apparently favors more or less routine exploration of the common duct in gall-bladder cases. This naturally increases the length of the operation time with a corresponding increase in shock and danger of infection. At the present time I do not feel that such teaching is entirely justifiable. When the gall-bladder is acutely inflamed the ducts should not be explored if it is possible to avoid it, such exploration by all means being better borne if made during the quiescent period.

Time of Operation: Most of us are thoroughly convinced that the time to remove the appendix in acute appendicitis is early, as certainly in cases that are at all acute it should be done as early as it can conveniently be gotten at. I am quite sure that the same general principles should, generally speaking, apply to the case of acute cholecystitis. Just as in certain cases of appendicitis, delay may also be advisable.

Certainly the trend of the day is toward early operation. At the May meeting of the American Surgical Association, which was held in Washington, the subject of cholecystitis was up for general discussion and without

exception those taking part expressed themselves as favorable to early operation. The sentiment was expressed, however, that each case was a law unto itself and should be individualized in accordance with the best judgment of the surgeon. Certainly when the patient is extremely sick, the gall-bladder acutely inflamed and inaccessible, the viscus should not be removed. In such cases cholecystostomy is much the safer procedure.

In the Cincinnati General Hospital, with its vast amount of clinical material, a large series of patients were recently treated comparatively in order to determine and settle if possible, the advantages and disadvantages of early operation. Approximately one hundred cases were operated on in the early stages of acute cholecystitis. Another hundred were operated upon after rather prolonged delay and after the acute symptoms had subsided. The difference in the mortality was markedly in favor of early operation.

Mortality: As Judd, of the Mayo Clinic, has well said, there is a certain unavoidable mortality incident to gall-bladder operations. The two most outstanding causes of this are, first, respiratory infections, the incidence of which is greater following operations in the upper abdomen; and lastly, hepatic insufficiency, which is generally due to prolonged biliary tract disease. It must be admitted that at times no satisfactory method of treatment seems to be of avail when dealing with such problems. The death rate after operation will vary somewhat with the care taken in the selection of cases for operation and the care, skill and judgment with which they are handled.

I have personally operated on 674 gall-bladder cases, as follows:

Cholecystectomies—519. Deaths—28. Mortality—5.37%.

Cholecystostomies—135. Deaths—8. Mortality—5.92%.

Exploration Common Duct—15. Deaths—2. Mortality—13.33%.

Cholecystgastrostomies—5. Deaths—0. Mortality—0.0%.

Naturally, a good many of the earlier series were cholecystostomies with a few cholecystotomies. Some were much too far advanced in liver damage and should have been left undisturbed. The greater number of deaths were from pneumonia, quite a few of the patients were somewhat advanced in years; at threescore and five or ten, the setting is not so opportune for surgery. Two cases died from concealed leakage of bile, one from damage inflicted on the common duct at the time of operation. Four deaths were due to ileus. With our present knowledge of the treatment of this condition, probably some of the last could have been saved. Eight died from peritonitis, two of these resulting from previous rupture of the gall-bladder. Six deaths were from causes undetermined. Seven were deeply jaundiced at the time of operation. Three had typical empyema of the gall-bladder.

In dealing with the above series of cases, apparently normal gall-bladders were not operated on, regardless of the clinical history and symptoms. If such negative appearing gall-bladders, found at operation and associated with the usual gall-bladder symptom complex had been removed or drained, the operative mortality percentage would naturally have been considerably lowered. The majority of our cases occurring during the past eight years have had the benefit of cholecystography, but the clinical history and symptoms have been the main reliance in diagnosis.

Surgical Complications of Operations:

(a) Biliary fistula;

(b) Duodenal fistula;

(c) Accidental ligation or damage to the common duct, resulting in stricture.

Biliary fistula following drainage usually closes unless there is some definite obstruction to the duct that prevents a normal outflow of bile. These fistulæ were not uncommonly seen in the days when proper peritonization was not carried out and when liberal use was made of drains of various sorts underneath the liver and down to the region

of the cystic duct. With improvements in technique, these fistulæ are rather seldom seen.

Duodenal Fistula: The surgeon rarely has to deal with this unfortunate complication. When he does, he certainly has to be up on his toes and watch his step. A comparatively recent case of mine was successfully treated by the continuous instillation of decinormal hydrochloric acid solution to neutralize the digestive fluids and constant aspiration by water suction to remove them, the so-called Potter method. The fistula which has been discharging duodenal contents quite freely and which has proven beyond a doubt by giving the patient a capsule of methylene blue, (the dye appearing in the fistulous tract within a few minutes), closed after five days' treatment and did not reopen.

Damage to the Common Duct: The cystic duct is usually folded back and forth in its S-shape on the common duct and is adherent to it at times. Much painstaking dissection may be necessary to free it completely. If too much cystic duct is left behind, the tendency is to dilate and form a miniature gall-bladder. If too much is removed or a part of the common duct included in the ligature, well, it is just too bad. Some years ago, one of my cholecystectomy patients developed jaundice about four weeks after operation. I operated and found a stricture of the common duct but she eventually died as the result of the damage.

Among the rarer complications I will list a case of secondary hemorrhage of the gall-bladder following cholecystostomy. This patient was a robust, adult male, 42 years of age. The operation for removal of gall stones was not done during the period of acute infection, but during the quiescent stage. A number of medium sized stones were removed from the gall-bladder, following which rubber tube drainage was instituted. About ten days later, he had a severe hemorrhage from the gall-bladder. The tube, which was loose, was removed and a small strip of packing which had been saturated with a coagulating agent, was introduced. This patient finally, after three blood transfusions, recovered; the hemorrhages entirely ceasing after several recurrences.

Conclusions: First and foremost, gall-bladder operations should be done early, before permanent damage has been done to the liver and before dense, crippling adhesions have been formed between the under surface of the liver and the adjacent viscera. That, like appendicitis, the disease is one to be treated surgically. Most cholecystectomies can be handled without surgical drainage. However, many of our best surgeons drain all such cases. The bulk of gall-bladder operative mortality is due, first to pneumonia, and second, to lowered liver function.

The death rate will vary somewhat, dependent on the skill of the operator, the care used in the selection and preparation of cases, and especially will this be true if any great number of cases of mild type of gall-bladder disease be included.

The majority of early cholecystectomies may expect a permanent cure, probably 80% or more. A very considerable number are likely to have a return of the symptoms that existed previous to operation. However, nearly all cases seem to get complete relief for a time. Inasmuch as the disease process is often widespread at the time of operation, such disappointing results are understandable. Many of these patients suffering from recurrences have undergone repeated operations without very gratifying results.

Those undergoing operation early in the course of the disease obviously fare better than the late cases.

TUBERCULOSIS FIGHT

Emphasis is placed on the fact that tuberculosis is caused by a germ always spread from a tuberculous patient, in an article, "What You Should Know About Tuberculosis," by Dr. Moses J. Stone for April *Hygeia*.

"Since this is the method of infection, the problem would end and tuberculosis would be eradicated in a few generations, if all tuberculous patients in the community could be found and segregated."

THE ACUTE CEREBRAL COMPLICATIONS OF "NEPHRITIS"

By GEO. M. LYON, M. D.
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THE form of acute nephritis seen most frequently in childhood, is acute glomerular nephritis (often called acute hemorrhagic or acute post-infecticus nephritis). Blackfan has introduced the term "cerebral complication" to describe that condition which frequently arises in the course of this malady and which is characterized by an increased arterial tension and symptoms more definitely of a cerebral character such as vomiting, headache, dizziness, visual disturbances, convulsions and coma, and to which the term uremia is erroneously applied at times. The development of this complication is not dependent upon the retention of nitrogenous end-products (non-protein nitrogen, urea nitrogen, uric acid, creatinine, etc.) as evidenced by their demonstrable increase within the blood. At times, in these patients, an increase in these factors may indicate some nitrogen retention but the cerebral complication referred to it due to the same toxic factor that produces more or less of a generalized tissue injury with nephritis, cerebral edema, etc., as a part of a general condition. It makes possible a general intracellular edema and a cerebral edema that produces a high arterial pressure, a high intracranial pressure with consequent cerebral manifestations, chief of which are arterial hypertension and convulsions. This is not the type of edema seen in acute tubular nephritis which pits readily and easily shifts from one intracellular space to another; it is an intracellular edema.

The special pathology involved is a firm edema of the brain, increasing its total weight from 20 to 30 per cent more than normal, a flattening of the convolutions and the so-called "medullary cone phase" in which the medulla is forced into the foramen magnum as the result of increase in brain volume.

Blackfan and McKhann have further noted that this complication develops without regard to the amount of blood in the urine, to the duration of kidney symptoms, or to demonstrable retention of nitrogenous products.

In Cincinnati, 1923, Blackfan and Mills effectively relieved these patients by injecting intravenously a 2 per cent solution of magnesium sulphate. It was felt that the action of a hypertonic salt solution was one of osmosis, and that it effected a reduction in the size of the brain by withdrawing water from the cerebral tissues by osmosis. This belief does not seem tenable at the present time because intramuscular injections and the use of hypotonic solutions of magnesium sulphate have been quite as effective.

In 1928, Blackfan and McKhann found that a 25 per cent magnesium sulphate solution when injected intramuscularly produced a similar effect and almost as promptly. These workers and Aldrich have also shown and emphasized the value of magnesium sulphate by mouth and by rectum in these patients. In their experiences, these children with acute hemorrhagic nephritis rarely had diarrhea even when the salt was given in massive doses. After the cerebral and hypertensive symptoms abate, the stools tend to be more frequent and may be loose. The effect is not one of dehydration from purgation. Aldrich has further shown that the patients treated with restricted fluid and forced purgatives did poorly as compared with those given forced fluid and little medication and also even less favorable as compared with those treated with active magnesium sulphate therapy.

The treatment of this condition may be summed up as follows:

(1) *If the patient begins to show a rise of blood pressure,* at once give 15 to 30 c.c. of saturated magnesium sulphate by mouth every 4 to 6 hours, and reduce to one-half this amount when the blood pressure falls to

normal and the patient seems to be free from cerebral complications, and then give the same amount by mouth every 8 to 12 hours. It is important to force fluids during this time. The diet should be poor in salt. It may be relatively low in protein, but not necessarily.

(2) *If the patient is in a state of cerebral edema and the blood pressure is high and convulsions or coma are present,* give magnesium sulphate (25 per cent) intramuscularly, giving 0.2 to 0.4 c.c. per kilogram of body weight. If no beneficial results are obtained and the blood pressure does not fall, repeat in 2 to 3 hours. Rarely one may give in an emergency a 2 per cent solution of magnesium sulphate intravenously. With either intramuscular or intravenous administration it is necessary to continue the oral administration of the salt and force fluids as described above. The intravenous method would seem to be rarely indicated because of the efficacy of intramuscular injections.

The prognosis for recovery from the acute cerebral complication is good in the presence of the above therapy properly carried out. Prognosis for recovery from the acute glomerular nephritis is good and the chances are very good that there will be no permanent residual damage. This is not the view held ten years ago, and the method here described is one which has materially reduced the mortality of cerebral complications occurring in acute glomerular nephritis.

HYPERTENSIVE HEART DISEASE*

By G. H. BARKSDALE, M. D.
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ON our program you will note that we have the general subject of myocardial degeneration divided into two groups; namely, *hypertensive* and *coronary* heart disease. Not that hypertension and coronary sclerosis are its only causes, but for the reason that the remaining group is small and is of no interest in this discussion. If I should have more to say this afternoon about hypertension than heart disease, it is because these conditions are so closely allied to this disease, for essential hypertension is in reality a stage of heart disease. Twenty-three percent of all people over fifty die as a result of hypertension and 12% of this number die of hypertensive heart disease. So in taking up my subject, which is hypertensive heart disease, or congestive heart failure, secondary to prolonged hypertension, it is very much in order that I should go into some detail concerning certain phases of hypertension.

A great many etiological causes of hypertension have been copied from one text-book to another. The only one of them, however, that is convincing is the factor of heredity. I have seen series giving its incidence as low as 33% and as high as 95%.

It is interetsing to note that these prospective hypertensives conform to certain types in early life. O'Hare states that such patients give evidence of a weakened vasomotor system, such as abnormal flushing, blushing and sweating, frequent nosebleeds, abnormal menstruation, cold, blue sweating hands, and a highly nervous temperament. Many of these people in the thirties and forties become heavy workers, they are often the laborers who are known as the good men of the gang. Others become the typical extroverts of the luncheon clubs, with almost too much pep. Blackford summarizes it pretty well when he says: "Hypertension is a clinical picture of unknown origin which shows a strong family tendency. It is found in those past fifty in 16% of patients seen in general practice, and when established, the disease lasts for the rest of the patient's life." Stieglitz gives an hypothesis which sounds logical and at least gives

*Read before the W. Va. Heart Association, Morgantown, Nov. 29, 1933.

a rational excuse for our present line of treatment. We have referred to the youth with a vasomotor instability, the one who blushes, sweats, etc. We will refer to this as an hereditary vascular irritability. The vasomotor system of such an individual is so highly sensitized that it responds grossly to minute stimuli, correspondingly every hour their arterioles are made rapidly to contract and relax many times. The toxins from foci of infection, certain chemicals (lead, arsenic, etc.), hyperthyroidism, over-eating, obesity, certain endogenous intoxicants, and what not, may also be regarded as arteriolar irritants. So it follows that the constant action of these irritants on the arteriolar musculature produces spasticity. As a result of this constant spasticity, or increased muscle tone, a hypertrophy of the arteriolar musculature follows. Then there is more spasticity followed by fatigue. The fatigued muscle becomes hyperirritable and consequently more spastic. The more the muscle hypertrophies, the greater the spasticity and fatigue. The muscle then becomes hyperirritable and with the increased hyperirritability there is increased spasticity, and so the vicious circle goes. As a result, we have muscular exhaustion and degeneration, followd by fibrosis and arteriolar sclerosis which equals hypertension. If one visualizes a heart designed to maintain a blood pressure not to exceed 140/90, struggling to force blood through an arteriolar bed which has become inelastic by virtue of sclerosis, one then understands what is meant by hypertension and why it takes such a tremendous toll of life.

It is quite uncommon, especially in the uncomplaining, to find a well-established hypertension in the course of a routine examination, or one may come in complaining of sleeplessness, nervousness, depression, vertigo, headache, fullness in the top of the head, tinnitus, and what not. In addition, all the symptomatology and physical findings of a complicating nephritis may be present. Later in the large group referred to, compensation fails, and we have full blown the failing heart of hypertension. As you will note, I have referred to 3 stages of hypertension. I shall call them (1) Asymptomatic stage, (2) symptomatic stage, (3) stage of sequelae.

The asymptomatic stage I have referred to, describing the lad and young man or woman with vascular instability, gradually progressing up to thirty or forty years of age. In the symptomatic stage, the disease is beginning to make itself definitely felt. The constant pounding of increased pressure against the vascular walls causes more and more destruction of normal tissue which in turn, is replaced by connective tissue. The large vessels share in this destructive process, though physiologically they register but little. Again I wish to emphasize the point that it is the changed arterioles which bring about the pathologic physiology. Already the heart, in by far the majority of cases, has begun to enlarge to the left. I believe most truly that Christian is correct in saying that an "enlarged heart should be considered as seriously indicative of a progressive lesion whose progress we may be able to delay but not to stay." In my own work, I regard an enlarged heart as a pathologic heart under all circumstances, and believe it to be the most valuable single finding in cardiology. A systolic murmur may or not be present, granting that it was not there during the asymptomatic stage, it means one thing—a dilated mitral ring, its advent is an important observation, and it is the one place where a systolic murmur is of definite diagnostic and prognostic importance; namely, the heart is beginning to dilate because the muscle can not stand the strain. There may be an occasional extra systole, and this too, is a different matter from such an irregularity when found in youth. For it is in reality an auricular fibrillation in minature. Extra systoles in hypertension are important. By this time, arteriolar changes have taken place in the eye-ground. These changes are important from a standpoint of both diagnosis and prognosis. Granting that we have a record of the blood pressure in the asymptomatic stage, it will now be noted that the

systolic pressure has advanced materially, whereas, the diastolic was normal for many years, it also has advanced. This advance is most important, for the diastolic pressure measures the strain against which the heart is beating. It is aniomatic that the higher the diastolic pressure, the worse the prognosis. The patient now is a case par excellence of arterial hypertension. He rushes forth with a look of exaltation on his face, prepared to discuss the subject of high blood pressure with all comers. The electrocardiogram here is of little or no value. A left ventricular preponderance is usually noted. Any extra systoles are of course recorded. The urine may or not contain albumin and cysts, depending entirely upon the amount of kidney damage. While all are agreed that essential hypertension is a generalized degenerative disease of the cardiovascular system, not all organs suffer equally. The kidney for example may suffer more than the brain, the brain more than the heart, etc.

After a variable period of time, months or years, the hypertensive patient in the symptomatic stage takes a turn, and passes into the stage of sequelae. He may suffer a cerebral hemorrhage with consequent paralysis, a cerebral thrombus with softening plus dementia, a profound nephritis, or a congestive heart disease. Our hypothetical man has reached this stage. His exhausted left ventrical has reached the anterior axillary line, he has had a marked change of symptoms. He has lost his old pounding headache, he is less nervous, his blood pressure has fallen so markedly that the clinician may not realize that he is dealing with a heart which has failed as a result of hypertension. The pulse now may be very rapid and entirely regular, or an auricular fibrillation may have developed. Dyspnea always present at this stage may be so profound that he can not lie in bed. The heart in any event has lost its pumping force, all the reserve force has been utilized and it is now fighting a losing game. There is a general slowing up of the arterial circulation, the liver becomes engorged, the patient complains bitterly of upper abdominal distress, his "stomach is bad," he coughs, maybe there is bloody sputum, and râles are general over both bases, with the legs and genitalia swollen. Now and even back in the symptomatic stage he may have had paroxysms of nocturnal dyspnea — (cardiac asthma). Such spells cease with a failure of the right heart; it is for this reason that advanced cases rarely suffer these terrible experiences. The electrocardiogram at this stage is usually informative, and will of course record what changes have taken place in the conduction or vascular system of the heart. However, the general picture of terminal hypertensive disease is variable and so is the electrocardiographic picture. A bundle block, infarct, fibrillation, or what not, register as such.

The prognosis in hypertensive heart disease is inherently bad as compared with valvular disease. In the latter, generally speaking, we have the advantage of youth, and the myocardium up until late in the disease is usually capable of repair, whereas the hypertensive patient is usually beyond fifty. The heart has struggled against such odds and so long that its myocardium is fibrotic and worn out. Should it improve through temporary respite it is only a matter of time until the same old job that injured it in the first instance must be taken up. Life insurance experts have shown us that every point increase above the normal for age, sex, and height, reduces our expectancy by one year. If we omit from the picture all collateral factors such as nephritis, cerebral hemorrhage, etc., the diastolic pressure and dyspnea are our most important gauges before actual heart collapse. It has been said that the expectancy is two years if the diastolic pressure is 120 or more. I have found this entirely unreliable; however, the spirit of the statement is true. During this same period the blood pressure response to exercise and nitrate tests, gives us information as to whether the blood pressure is or is not variable. If the pressure fluctuates under specified circumstances as shown by the

tests just referred to, we know that the myocardium and the arteriolar musculature are to some degree adequate. Granting the blood pressure is fixed, the outlook is definitely bad.

The treatment of this type of heart failure includes all the principles prescribed for heart disease in general. If one expects curative therapy, it must be started in early life and at that stage of the disease when the arterioles are elastic. Granting they have become arteriosclerotic, the treatment from here on is of necessity symptomatic. For "fibrotic scarring and replacement of degenerated muscle cells are not amenable to therapy, but represent permanent injury." — (Stieglitz). In the past few years a great many new drugs and methods have been introduced. Many of them are of great value. In the group of diuretics and vasomotor dilators for instance, there are so many that one failing in a certain case, another may be tried often with gratifying results. There are men with small interest in cardiology who despair of these cases. I feel that their approach is wrong. In the first place, the best men are often completely deceived as to what these hearts can do. For undoubtedly the heart has greater power to come back than any other organ in the body. Further, no one expects a cure in these cases and the patient and family are always most grateful for any comfort. There are a great many things which can be done of prime therapeutic value. There are many little tricks and suggestions which may mean much, in short it may be said that if the man in charge of the case is truly interested and aware of the many things that can be done, he will find the care of such patients interesting and forever appreciated.

SUMMARY

(1) Hypertension leads as a cause of heart failure.

(2) Hypertension begins in early life and begins to make itself felt in the late thirties and early forties.

(3) Hypertension may definitely injure the heart before the real condition is realized by the patient.

(4) There are three definite stages which I have chosen to call the asymptomatic, the symptomatic in which the patient presents the symptom complex which we refer to as high blood pressure; the stage of sequleae where the disease has in reality done its destructive work and the organs affected are responding accordingly.

(5) The diastolic pressure is more important than the systolic pressure, and with dyspnea contributes early and valuable information.

(6) When decompensation sets in, the clinical picture at once changes.

(7) The cardiogram is informative to a different degree at different stages, depending on the pathology and pathologic physiology.

(8) Treatment even in the very advanced cases may be highly successful, and one should never consider a case so low that nothing can be done.

FINICKY EATERS

Malted milk has been advertised in such exaggeration as a magic powder to digest other foods, stimulate appetite, produce hunger, put flesh on bony, underweight children and induce sound, restful slumber, that many persons may fail to give due weight to the claims of honest manufacturers who sell malted milk merely for what it is; namely, a good, nutritious, valuable food. Such is the opinion of Doris W. McCray who tells of the work of the American Medical Association's Committee on Foods with respect to malted milks in "A Housewife Looks at the Committee on Foods," in the April issue of *Hygeia*.

A hot drink at bedtime may help to induce sleep, and milk is good for this purpose; but since many persons do not enjoy the taste of hot milk alone, malted milk is an excellent addition since it increases the caloric value. The housewife does not have to urge its use because it has palate appeal.

She may well complain, however, if it spoils the appetites of her family for regular meals. It should be only an appetite-teasing addition to milk. As such it is especially important in the diet of the undernourished, finicky eater who often presents a problem in getting enough milk into the diet.

CROSS ROADS IN MEDICINE*

By RUSSELL WOLFE, M. D.
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I LIKE to look upon the spirit of medicine as a great caravan that has been moving upon the highways of time since the primitive civilization of man. The leaders of this caravan have ofttimes drawn upon their past experiences and those of their forefathers in gauging the speed of its travel and in determining the future course. They have never found it wise to listen to the soothsayers and the prophets who many times have volunteered advice and directions wholly lacking in the wisdom of experience.

This caravan was safely brought out of the Dark Ages when the highway was nothing but a trail in a wilderness. It faltered many times during the Medieval period when its road was crossed by the paths of superstition, ignorance, persecution, religious interference and dogmatism. It may even have been stopped for awhile at these points but never once did it forsake its course. It has plodded onward upon the straight and narrow road toward a future into which it could not see, guided by a faith born in truth that has not been surpassed even by that of the Christian martyrs in the Roman arenas.

As the centuries passed the highway broadened, the speed of travel increased, and the caravan grew in size and numbers. There has often been dissension in the ranks and at times some bitter controversies threatened to dissolve the organization. Out of each of these critical periods, medicine emerged all the more capable and strong, with a determination to reach its destination unhurt and undefiled.

From our viewpoint, the last 75 years seem to have been the period in which our caravan has made the greatest progress, both in the size of the organization and distance covered. Eclecticism, Therapeutic Nihilism, Physiomedical schools, Homeopathy, Christian Science, patent medicines and a host of other irregulars have laid their obstructions across the highway without even impeding the speed of our scientific and humanitarian medical caravan. Not once have we deviated from the highway in favor of one of these bypaths.

Food supplies for the units of the caravan have been precariously low on more than one occasion; it has weathered financial depressions before and we all shall live through this one. There are many who consider the speed of our travel not sufficient and who seeing the traffic of other professions and trades swiftly passing would like to desert the ranks for faster means of transportation —to what destination they do not know or seem to care. A few have deserted and loud has been the wailing when they later found the ranks closed to them on their attempt to return to the fold.

Two years or so ago we came upon a broad crossing with enticing signboards pointing the way to group insurance and the land of centralized medicine. Some of our hospital trucks being more heavily geared and higher powered than the smaller units turned out at one of such crossings.

For the most part those in charge of our hospital divisions may be considered honest, trustworthy members of our army who would not knowingly lend their efforts and resources to any course that would bring odium or disrepute to the profession. The majority of those of whom I am about to speak have simply let the machine get out of control, temporarily only, I think, and before they have gone too far along the cross road will reconsider and again join the caravan that travels the main thoroughfare. In their number are a few, who, under the guise of progress and advancement, have taken the cross road to Prepaid Insurance (?) and have prevailed by

*Read before the Conference of County Secretaries of the W. Va. State Medical Association at Charleston, January 16, 1934.

dint of competitive measures on others, to follow them. Haven't you always found that those who have been willing to scrap our existing code and time-honored methods are seeking some point of competitive privilege over other hospitals or groups in the same community?

The West Virginia Hospital Association brings up another of my favorite topics. I shall pass over the matter briefly here hoping to have another opportunity to have my say in the near future. But this much for the present. You remember the annual convention of two years ago, the president's address in which he loudly proclaimed the passing of the independent practitioner in favor of large centralized groups. There were a lot of words concerning the proper development of clinicians under conditions free from financial worry because of the salary feature. We were told that whether we wanted it or not, hospital and medical insurance was coming and there would be no place for the family physician or general practitioner. Well, who ever heard of a salaried position in which the payee was not at some time or another, and most of them all the time, afraid of his job. I could also say a lot about the surgical ability of a clinic chief who is constantly harassed by financial difficulties and the necessity of keeping his institution going. It is a significant fact that no other member or official of the West Virginia Hospital Association has taken issue with the anti-practitioner attitude as expressed by its president in 1932. We cannot foretell what the attitude of the Association will be at its coming convention; we think it will be much more wholesome, but it now stands as a matter of record that the Association is not only entirely out of sympathy with the family physician but is actually striving to annihilate him.

Two years have passed and we still have the private practitioner. Little or nothing is heard from the Committee on the Costs of Medical Care, a gigantic swindle that created quite a newspaper and professional furore a few months ago. The attention of our caravan turns to more timely things.

Less than two decades ago that part of our organization that styles itself "Public Health" cut out of line and has been trying to keep up on a bypath. In our late prosperous era their progress was fairly easy and great was the roar of their vans as they swooped down upon village after village in quest of the work that properly belonged to physicians residing in the communities. It is a significant fact that during the present two years of our medical relief work nothing of note has emerged from either the federal, state, or county health offices. With the near breakdown of political machinery, public health organizations have been too busy maintaining their own set-ups to come forward with any constructive measures. Has the West Virginia Public Health Council provided any plan of relief under the F.E.R.A. or C.W.A. either for medical personnel throughout the state or for the great mass of the unemployed? If so, I have not heard of it, and probably would not because we have no reason to expect that any plan emanating from the Department of Public Health would include the practitioners of medicine within the borders of West Virginia.

It is true that the apathy of physicians toward matters of public health is largely responsible for the upgrowth of a separate organization to handle this important phase of medical practice. But, has the state in recognizing its obligations in preventing communicable diseases ever offered to compensate its regular medical licensees for this work? I submit to you, gentlemen, that if the country practitioner were paid for this work he would make as good a health officer as the best of them. And if time permits I shall point out further on what is now being done by some local county relief administrators to restore the medical practitioners' interest in this rightful phase of his work. It is enough to point out here that the Public Health Department has emerged with no program to consider the welfare of doctors, unemployed nurses, or of

the suffering public, although the public treasury has been overflowing with funds available for any reasonable project. This has been left to other agencies, which fortunately for us, are more sympathetic to our present day problems.

The nurses have never attempted to withdraw from our rank and file, although there have been times when we have neglected to give them proper consideration. When the depression hit us their services were among the first to be curtailed and many unemployed were added to the surplus of nurses already present. The word surplus is inadvisable. There are not too many nurses. As with cotton, hogs, wheat and many other things, it is not an overproduction that is at fault; it is under-consumption. It remains for us to see to it that the faulty system of distribution is remedied. No one can justly claim an oversupply of nurses as long as parturient women within the state are denied such expert services. And we fall far short of supplying nursing and even medical services for every infant babe. Again I repeat the old song, "it is the system of distribution which is at fault."

It resounds to the everlasting credit of the President of the State Nurses' Association, Mrs. Kathryn Trent, that she has actively taken charge of the situation and has created an outlet for the services of available nurses. And through these same agencies she has also provided the opportunity for the restoration of preventive medicine to the hands of those best prepared to handle it, the family physicians. I shall say more of this later. It does not speak so well for us, as members or officers of the West Virginia State Medical Association, that we were not the first to come forward with such plans.

Standardization, preparation, training, are dangerous words. These very things that we have striven mightily for are now responsible for most of our endogenous ills. Too much stress has been laid upon these factors and not enough upon character, service, adaptability and a willingness to serve. Before emphasis upon these points the doctor was a "rugged individual" and an outstanding personality in the community. If he were not, the forces of natural selection eliminated him. Now, as one of our local doctors has many times phrased it, "all doctors look alike in the eyes of the masses." The same may be said of nurses. Our fetish of standardization has created an atmosphere wherein it is possible for those so disposed to do so, to take advantage of the more timid souls among us and thus group them into private hospital staffs or clinics and out of such grow most of our ills resulting from their porcine manner of competition.

With the apparent purpose of the State Nursing Board of two years ago to close smaller training schools I cannot agree. This was a cleverly disguised competitive move that masqueraded under the cloaks of modernism, progress and improvement. Sometimes when I view the situation in a broader sense it does appear that it would be wise to close all training schools under a three hundred bed capacity. Recent experiences with graduates of a small training group has, however, convinced me otherwise. A case of pneumonia in the near past required the services of a nurse for a member of my immediate family. Constant, twenty-four hour duty was the order, which, however, was no more arduous than for the usual pneumonia case. Our nurse was with us for seven days and at the end was not inattentive, fatigued, depressed, overworked, or dissatisfied. This was concurrent with the time last fall when the nursing association was campaigning for a three-shift day and I was keenly alert to observe the quality of services rendered and the effect upon the nurse. Before the first twenty-four hours had ended I concluded that I would rather change doctors three times a day than nurses. Recently I had a similar constant six-day experience with a graduate of the same training school on a contagious case. My observation of the nurse was as careful as of the patient. At no time did she complain, appear oppressed, distressed or seem any the worse for the trial. In fact,

she enjoyed the experience and I hope in the near future will profit by it. When I say to you that in both these cases the nursing service was par excellence, I am comparing it with that of my former experiences in a twelve hundred bed hospital system where many nurses have college degrees. There was not even a high school diploma in the background of the two instances just cited. For my nursing services I require good work, loyalty, and a sympathetic understanding regardless of diplomas or union cards. If the state registry cannot supply them I will look elsewhere.

The complaints of the Nurses' Association are however not altogether unjustified. Consider their training. I will read you a few questions from their last--the 52nd annual examination. Make a mental note and see reflected in them exactly the same you were required to pass before our various faculties and state boards. I take it that they are a true indication of the teaching of nurses in this state and my comment is that nurses training schools are not training nurses. If they can creditably pass this examination they are entitled to a license to practice medicine, class C or D though their school may be. Any wonder that a graduate who has passed through such a curriculum should consider that she is entitled to as much as the doctor and should have an aide to do the more odious tasks for her? Nurses training schools should lay more stress upon the principles of nursing rather than upon the scientific foundations of medicine.

Our brothers in limited practice, the specialists, have never thought of divorcing themselves from the ranks of our caravan, on the contrary, they have been most zealous to remain in line. But even here, you no doubt have felt a discordant note. On the face of it, all this talk of years and more years, of superlative training for any one of the specialties seems a little ludicrous, does it not? Why, if for any other than competitive reasons, required a candidate to spend twice the time learning to manipulate a cystoscope or ophthalmoscope, when conditions under which he will use it will rarely be critical or desperate, and at the same time turn the novice loose upon an unsuspecting public to treat the grave illnesses of mankind after a single year of hospital experience? Should not the so-called general practitioner have a complete, composite training in the specialties. I have no idea that this condition will be changed and I am advocating no reforms. I merely wonder at the situation as I would have you do. It has been the natural product of our development.

The roads of state medicine have crossed our highway many times. We are approaching it again, but have no thought of making a turn. We are passing through great socialistic experiments, but I see no indication of a breakdown of our capitalistic precepts. Indeed, those wise and skillful leaders in our great relief enterprises are striving to restore the head of the family to his original pre-depression independent status. I look forward within my reasonable expectation of years to a time when there will be no free clinics, or pauperized medicine, with all its degrading effects on a civilized people, but to a time when our resources and our wealth will be more equally distributed and everyone is expected to pay his way with overcharges, such as are now mandatory, for none.

I see in the sympathetic administrations of our various county relief projects an opportunity to regain much of the prestige and practice we have lost. We will however have to tighten up on the restrictions of our Code, because we have with us not a few unprincipled individuals who will try coup after coup to gain competitive advantages. We may even have to include price listing in the code as many industries have been forced to do. There is always a "nigger in the woodpile" every time one of our number talks of abandoning or loosely interpreting the Code of Ethics, which by the way is the first of such formulated to govern the conduct of any professional body.

If we lose any of our heretofore precious standing in the eyes of our people it is our own fault. Back in 1931 when the R.F.C. was first proposing its public relief projects where were the representatives of organized medicine? Up in Washington, lobbying for liquor liberty, and two years later a popular uprising brought all this hard work to naught. Any wonder that high officials of the Federal Emergency Relief Administration gave physicians anything but the merest of passing thoughts in drawing up their manifold relief programs. Right here in our own state we were given but the barest of consideration throughout the last year because our own officials out of a gross underestimation of the magnitude of the problem approved the first medical relief program handed to them. The success thus far obtained by our local relief committees in having funds allocated for medical services on a fee basis, and the rather marked successes of our State Medical Relief Committee during the three weeks of its active existence demonstrates very clearly what can be done if we appreciate the conditions around us. Along with this, naturally, comes a sense of responsibility and a knowledge of privileges that must not be abused.

President Roosevelt has asked Congress for an appropriation to continue the work of the R.F.C. for another three years and the indications are that his request will be approved. We can readily see then that our self-styled emergency may be expected to last for at least three more years. Will organized medicine calmly wait for others to produce all the relief projects and then protest that part which does not suit us, or will we come forward with projects to help in the rehabilitation of our people?

At this point I must invite the Medical Relief Committee's attention to an inconsistency in their articles of agreement with the regulations of the Civil Works Administration. The Administration provides for the contracting for medical services from a list of physicians designated by them as suitable. Our articles of agreement insure free choice of physicians and the preservation of the personal relationship of patient and physician. Just before preparing this discussion I received a telephone notice that in Berkeley County all the medical relief work was to be done by one contracted physician and that that physician had found it necessary to employ another to take care of part of the work. This condition will bear investigation of the Relief Committee and if true it must not be condoned. All regularly licensed physicians must be treated alike, whether members of this Association or not, and the free unprejudiced choice of physician must prevail.

Our caravan is rounding the curves bordering upon the domain of state medicine. The storm clouds are still hovering over us, but the way lies straight ahead and our momentum is great enough to push us over any nearby obstruction. The signboard points onward to the land of peace and prosperity and the faith and principles of our forefathers will lead us through. We must quit ourselves like men, be strong, and stand fast in the faith.

REQUISITE FOR MATE

In the face of the annual expenditure of thousands of millions of dollars in the United States in order that the younger generation may go to school, it is well to ask whether all the sacrifice entailed is really accomplishing the avowed purpose of education, the preparation of young people "for the problems of life," Dr. Thurman B. Rice comments in the April *Hygeia* in "Education in Relation to the Family," the tenth and last of his sex education articles.

The basis of Dr. Rice's discussion of the meaning of education is his statement that "education is the state of knowing what to do under a given set of circumstances, and how and when and where to do it."

"What has all this to do with sex education?" Dr. Rice asks rhetorically. He answers by saying that it takes more than a piece of sheepskin to make a success of life and to rear a family. The parents of the future should be educated in the real sense rather than in academic facts that lead to the diploma.

ULTRAVIOLET IN THE POST-OPERATIVE TREATMENT OF RADICAL MASTOIDECTOMIES

By A. P. HUDGINS, M. D.
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THE radical mastoid operation is difficult, severe and dangerous. Its operative complications are many and its post-operative care often prolonged.

The purpose of the operation is to cure a chronic infection or the results of an infection in the mastoid bone, or in the attic of the middle ear or both. If this purpose is achieved, discharge from the ear of long duration will be stopped, which will be a source of great satisfaction to the patient. The removal of the diseased bone checks the progress of the infection in its deadly march toward the vital intracranial structures. The operation is also performed when intracranial complications are threatened as a result of chronic mastoid and middle ear infections.

The object of the radical operation is:

(1) To eradicate the diseased bone.

(2) To transform the mastoid air cells, the antrum, the aditus, the attic of the middle ear, and the external auditory canal into one common cavity.

(3) To secure healing of the cavity formed by covering it with a layer of epidermis.

The specific cases in which the radical operative procedure is indicated, are the following:

(1) Chronic mastoiditis, with cholesteatoma.

(2) Caries of the bone of the tympanic vault or middle ear.

(3) Tuberculosis of the middle ear.

(4) Chronic otorrhea with signs of intracranial or intralabyrinthine involvement.

J. Morrisett Smith,[1] in an article read before the American College of Surgeons discussed four mastoid operations with the advantages and limitations of each:

(1) The complete simple mastoidectomy.
(2) The modified radical.
(3) The new radical.
(4) The radical mastoidectomy.

The last three vary in the degree of bone removal that is accomplished, the object being to conserve hearing as much as is possible.

In the complete simple mastoidectomy, all the mastoid cells are exenterated to the healthy plate in the middle and posterior fossae without disturbing the conducting apparatus.

The modified radical operation obtains the same results except the posterior bony canal wall is lowered and the membranous meatus is enlarged.

The new radical operation, while it allows the posterior bony canal wall to remain in position, goes a step farther and permits the removal of the contents of the middle ear, including the malleus, incus, and drum membrane.

The radical operation provides for the complete removal of the diseased structures in the middle ear and mastoid, including the posterior bony canal wall, the drum and ossicles down to the internal wall of the middle ear and dural plate covering the brain in the middle and posterior fossae.

More recently a further modification has been advocated which in effect is an antrotomy, in that the opening into the mastoid is directed primarily at the antrum and surrounding structures. When the remaining mastoid bone is found to be sclerosed it is not removed. This condition is often found in adults.

Whatever method is used, the only mention to be made here is the plea for thoroughness in the removal of all diseased tissue and

bone about the antrum, attic, hypotympanic space, and middle ear proper.

Naturally, a matter of much concern to the otologist is the function of the ear after the operation. This should be uppermost in the surgeons mind in selecting the operation and post-operative care. (Brown,[5] Pressman,[6] Asherson[7]).

Many variations in post-operative treatment for radical mastoidectomy have been suggested, each with its ardent supporters.

(1) Wet method — frequent irrigations with sterile boric acid solution.

(2) Dry method — application of boric acid powder over the cavity.

(3) Parraffine dressings (oil). (Frey[8]).

(4) Packing gauze or rubber tissue in conjunction with the above.

Several writers (Alexander,[2] Russell,[3] Kavacs[4]), have mentioned the use of ultraviolet in mastoid infection, but it was for general tonic systemic radiation only — not locally.

In this series of cases the details of the classical operation were followed throughout, and the posterior wall flap (Korner's Flap) was used. No skin grafts were done. After completing the operation the cavity was packed as usual through the enlarged meatal opening. The packing was removed on the third day, i.e., two days sooner than the conventional five days. The cavity was carefully cleansed with hydrogen peroxide and subsequently dried, then mercurochrome (6%), was applied over the entire surface and ultraviolet radiation applied at close range into the meatal canal for its effect on the bony surface. This was repeated daily with no other post-operative treatment being used. The packing was applied in some cases and omitted in others without any noticeable difference in the healing.

The advantages noted were:

(1) The rapidity of epithelization.

(2) The absence of granulation tissue.

(3) Comfort to the patient.

The rapidity of healing was very noticeable. In most cases the surface was completely covered in three weeks, the only subsequent treatment being occasional irrigations and alcohol drops.

It was very gratifying to note the entire lack of granulation tissue. In no case was it necessary to use any caustic, cautery, or curretage of any kind.

The patient did not dread the dressings in that the packings were reduced to a minimum. There was only gentle mopping required, and no granulations to be drastically handled.

The use of ultraviolet radiations locally over the operative area in radical mastoidectomies is rational therapy when we consider the effect of the rays, that is, the effects with which we are familiar. The writer has searched the literature and sought information from authentic sources and nowhere can a report be found of the use of ultraviolet in post-operative radical mastoidectomies. Nor has any report been presented, showing the result of ultraviolet over the denuded bone anywhere in the body, although no doubt, it has been used many times.

Ultraviolet radiation is divided into two groups: the long rays, and the short rays. The long rays are more penetrating, and are stimulating and regenerative, biological. These are usually given with the lamp thirty or forty inches from the body. The short rays are destructive, abiotic, bactericidal. The short waves are administered at a short range, seven or ten inches or closer.

It would be ideal if the results of the two rays could be combined, both the stimulating and the bactericidal. This would require two radiations, one from a distance and then close range applications. In this series only the short range was used.

In treating skin diseases some authorities on ultraviolet warn against over-exposure to prevent the destruction of granulation tissue. In some instances this is no doubt important, but the checking of its growth following the radical mastoid operation is very important, and this feature of the ultraviolet ray serves a very helpful purpose in this case.

The writer tried other dye solutions, but with very disappointing and rather devastating results.

After following one case through with satisfactory improvement being noted daily with the use of six per cent mercurochrome preceding radiation the ear cavity was painted with a solution containing methylene blue, gentain violet, and acriflavine. The next day the surface was completely denuded, and apparently the progress of about ten days had been wiped away. Due to this experience and the fact that there were no untoward results noted following the use of mercurochrome, this latter solution was used throughout.

The quartz mercury lamp, (air-cooled) was used chiefly. The dosage for close exposure is usually thirty to sixty seconds. The writer exceeded this dosage without harmful effects.

Conclusion: Ultraviolet radiation in the treatment of radical mastoidectomies offers a decided advantage in post-operative therapy in the following points:

(1) Rapid epithelization.
(2) Granulation reduced to a minimum.
(3) Comfort to the patient.

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DIAGNOSIS AND OFFICE TREATMENT OF THE MORE COMMON GYNECOLOGIC PROBLEMS*

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In presenting this paper to you, I wish to emphasize a few things which have been of interest and importance to me in my work in the treatment of the various diseases of women.

Unquestionably diagnosis is of paramount importance, careful routine history should be taken by the physician, and this should be preferably taken when alone with the patient. They will talk more freely and one can elicit more detailed information. It is well to know, if possible, the menstrual history of the patient's mother, in order to learn of any inherited tendencies. The number of pregnancies, if married, the number of miscarriages and their intervals, also if miscarriages have come between normal pregnancies. If married, the patient's marital relations. Are both parties satisfied with intercourse? If there is any pain at the time or afterwards, and whether sexual desires have been relieved or the patient relaxed after intercourse. As a rule it takes only a few minutes to obtain a complete history.

Remember to make careful inquiry as to goiter in the family. The thyroid has marked influence on the menstrual cycle, as all endocrine glands act directly and indirectly with and upon each other. So few realize that a normal thyroid is almost as important in the menstrual cycle as are normal ovaries.

In beginning the physical examination, try if it is possible, always to have your patient lie straightened out on a flat table or bed, so she will be completely relaxed and comfortable, in order that after the history is taken, you may make a fairly complete general examination. In so doing, note particularly:

*Read before the joint meeting of the Cabell County Medical Society and the Academy of Medicine of Parkersburg at Parkersburg on October 5, 1933.

Condition of patient's hair, whether brittle or not.

Facial expression, noting gross condition of eyes and ears.

Tonsils, whether infected, submerged or hypertrophied.

Teeth, condition.

Thyroid, enlargements, if so, whether it is unilateral or bilateral, any nodules or tenderness. If there is anything suspicious, have a basal rate run.

Chest, condition of lungs and heart.

Abdomen, in going over the abdomen, palpate over each quadrant, and note any tender points. This helps to eliminate other conditions and get down to the pelvic problems. Particularly note tenderness in the gall-bladder region; also note carefully one-half inch on either side of the umbilicus, the so-called Leggs point, as it is most important in differential diagnosis. If tenderness is found on either side of the umbilicus, it indicates some disturbance of the kidney on that side. Tenderness at McBurney's point is more apt to indicate trouble on the right side of the pelvis. Ofttimes we are able to differentiate between acute and chronic pelvic inflammatory disease by deep pressure and quick release.

Now we come to the place where so many of us make mistakes, that is in doing the bi-manual and vaginal examination. It is of utmost importance that you have the proper light and equipment. One may use either a good head light, head mirror or flashlight. Be sure to have a good type of speculum. Place your patient in stirrups or in lithotomy position on the examining table. Examine carefully, first, the external genitals for new growths, enlargement of the labia for hypertrophy and for any involvement of the Bartholin or Skene glands. Also examine the condition of the hair over the pubis; look closely for nits or pediculi, as this ofttimes leads you astray. Patients frequently come to you complaining of unusual disturbance and upon careful examination you will realize that the trouble is caused entirely by pediculi. Note any vaginal discharge and have a glass slide and two applicators, take a urethral smear on one end of the slide and later during examination, secure a cervical smear on the other end, and send slide to laboratory for examination. Now introduce a vaginal speculum, of the DeVililis type and carefully note any abnormalities of the vaginal wall, erosions of the cervix, lacerations of the cervix, or infected cervical glands. Turn the speculum half over and note the condition of anterior and posterior vaginal walls. In this way it is very easy to see if either a cystocele or rectocele, exists. If all these things have been noted, then it is time to do your bi-manual examination. It is unnecessary I presume to add, for your own safety, always wear rubber gloves and I wish to add that no man can examine carefully both sides of the pelvis with the one hand. Use the right hand to check over the right broad ligament region and right side of the pelvis and the left hand for the left side. Carefully note the position of the uterus, whether freely movable, if adhesions are present and so on. Palpate the broad ligaments for any masses, tender spots or abnormal conditions, noting uterine displacements. See if there are sufficient adhesions to fix the uterus or if it is movable in normal manner. Note condition of tubes to see if there is acute or chronic salpingitis or if they are apparently in normal condition. Ovaries, whether they are enlarged, cystic, ptosed, sclerotic or tender. Note condition of cervix; whether hard nodules are present; if it is hypertrophied or lacerated. Also note condition of vaginal outlet. If this is markedly relaxed, I believe you can readily see it is a surgical problem; if gross lesions are not present, many of these conditions can be treated in the office. Note condition of the urethra, whether it is tender and contains any discharge. Ofttimes if we have checked these things early, it may save a lot of kidney involvement later on.

Now you have a fairly complete examination of the patient. Let us divide these cases in two major groups—surgical and non-

surgical. The former we will not take up now, though the borderline cases are ofttimes hard to handle.

We will divide the non-surgical into, first, specific infections, caused by syphilis, gonorrheal infection or by mixed infection, involving all or part of the genitalia and reproductive organs.

Second—uterine displacement, with ptosis of the ovaries and tubes, and under this the various cystic degenerative changes of the ovaries.

Third—cervical erosion, cysts, lacerations.

Fourth—Bartholin and Skene gland involvement.

Fifth—condylomata, new growths on the external genitalia, new growths in the cervix, carcinoma, chancre or chancroid ulcerations, infected cervical glands and gelatinous cysts, multiple or single.

No examination is ever complete without a Wasserman, for one never knows when or where it will show positive.

As to the treatment of these conditions:

First, in acute gonorrheal infections, nearly always urethral, but Skene and Bartholin's glands, may be the source of the primary infection, which gradually extends up the vaginal tract, involving the cervical glands, and, if not stopped, continues on through the uterus, involving the tubes.

I do not think that anything has or will take the place of silver nitrate or some of the milder silver preparations. In the treatment of acute gonorrheal infections, first introduce through the urethra into the bladder with a urethral syringe, one ounce of 10% solution of silvol; then clean up the vaginal tract. I use essence of caroid, because it cleans off most of the excess secretion and permits the bactericidal solution to penetrate more deeply and destroys the infectious organism. Use a good type of vaginal speculum, dry out the vaginal tract and cervix with cotton, paint the cervix and vagina with a 5% or even 10% solution of silver nitrate. This is the so-called abortive treatment. Have patient return again in twenty-four hours for second treatment, then again in forty-eight hours. You may use the silvol treatment in the bladder and also saturate well made vaginal tampons with a 10% solution of silvol, placed high in the vaginal vault, leaving these in the vaginal tract 10 to 12 hours. These treatments may be continued daily. When the tampon is removed, a douche should be taken, using some good antiseptic douche powder. As a rule, where cases are taken early, they may be cleaned up within ten days or two weeks under this treatment.

If the case is more persistent or the patient has had the infection sometime before coming to you, it might be well in the beginning and along with the above treatment, to give the patient a gonorrhea serum. Some men claim to have had wonderful results from its use.

During the past two or three years, I have seen a large number of cases in which we are dealing with, a definite B. coli infection of the vagina and cervix. I believe this condition more resistant to treatment and that more care is required in the handling of these cases than gonorrheal problems. I do not believe silver nitrate treatment is nearly as efficacious in these cases as the use of merthiolate aqueous solution 1-1000 used alternate days with Colle solution, a silver preparation, after first cleaning out vaginal tract as in the treatment for gonorrhea, then both of these solutions are applied on well saturated tampons, and placed high in the vaginal tract. The tampons should be retained in position 10 to 12 hours, and after removal, followed by an antiseptic douche.

Next we come to syphilitic problems. It is important that we differentiate chancre and chancroid. The chancre unquestionably has a definite form and we frequently see multiple chancre with condyloma as well. The chancre will very promptly disappear if the patient is given a sufficient amount of neo-salversan. Chancroid will be cleaned up with the use of a phenol-iodine solution, or powdered calomel. Thorough washing daily with soap and water is essential.

New growths of the external genitals, such as verruca or warts and condylomata, are best removed under cocaine with the electric knife or cautery. Condylomata should be followed by intensive anti-syphilitic treatment.

If in our examination we find erosions, infected glands in the cervix, or small cervical lacerations, these may be treated in the office with the electric cautery or electric knife, evacuating all swollen or infected glands. The cautery or knife should be used on cervical glands of the cystic or infected type, for this will clear up the trouble usually with one treatment.

For the various types of erosions, introduce a small electric cautery on the inside of the cervix and cut out to the extreme outer edge of cervix, going completely around the cervix in the method as do the spokes in a wagon wheel. Go over the entire area carefully. No anesthesia, either local or general is needed for this work, as there is little or no pain connected with the treatment. Large hypertrophied or everted lips of the cervix and smaller cervical lacerations, may be cleaned up as well in this way, usually one or two such treatments being entirely sufficient. Be sure and warn patients that they will have an excessive amount of vaginal discharge following one of these treatments, and that they should take a daily douche, lying down. I do not think that any douche is of much value unless taken lying down. Your patient should come back after one week for careful inspection as to progress being made in cervical healing. If you have to repeat cauterization, as a rule it may be necessary or advisable to do so, but not more frequently than 10 to 14 day intervals.

Now we come to the problems in which most of us fail to get results. That is the various displacements, cystic ovaries, tubal involvements, and so on. If the uterus is fixed and not fairly freely movable, it is never advisable to attempt by manipulation to replace it to normal position or use pessaries for support. If movable and by manipulation it can be replaced in a normal position, one of the various types of hard rubber pessaries may be used to hold it up. If after three months' use, it will not stay in position with the aid of a pessary, then I think the case is surgical. If with the displacement we have cystic ovaries, it is advisable before using pessaries, to give the patient vaginal treatments to try and reduce the size of the ovary, or to thin down the cyst wall. Many have ruptured by simple bi-manual examination, and ofttimes do rupture spontaneously. In this treatment, I usually use tampons saturated with boro-glycerid-chloretone solution or boro-glycerid-ichthyol solution, and frequently under this treatment, after the acute stage is over, the congestion is relieved, and the uterus somewhat reduced in size, then the uterus may be maintained in a normal position with a pessary.

The same routine treatment applies to practically all acute pelvic inflammatory conditions, with the added precaution in acute cases to keep the patient in bed and off their feet for several days, using externally, either an ice cap over the lower abdomen, or heat in the form of oil of wintergreen or turpentine stoups. Again, if these cases do not respond to treatment in two to three months, they should be sent in for surgery. Never permit, if possible to prevent, a patient to be operated upon during the acute stage, as they always make a better surgical recovery after this stage is past.

Now, if you will bear with me a few minutes longer, I would like to take up briefly the subjects of Sterility and Frigidity. So often a patient comes to you and says "Doctor we want to have children and cannot". First, always find out if the male is able to procreate. Have them have an intercourse with a condom and examine the semen for spermatazoa. If the male is normal, then check up the female carefully and note particularly the vaginal discharge. Highly acid vaginal secretion kills spermatazoa. Poor timing, with the male in too much of a hurry, is contraindicated and sufficient time must be taken to get proper coördination on the wife's

part. Before marriage, a man will take a girl out and love her up for some time before starting to do anything. The same technique must be used with a wife if they expect to get results. This is where the so-called frigidity comes in. Fifty percent of the women have no sex appetite or pleasure because they have not been properly trained or handled to start with. So many are hurt or scared at the first intercourse and they never forget it. I realize that in the present generation, lots of them have their first experience in automobiles and particularly under the influence of liquor, so they do not know if they have been hurt until too late. Lots of women do have quite a lot of difficulty with unbalanced endocrine problems, which may be corrected by giving them the proper instructions, and the needed treatment.

Some women, past the age of 35, begin to let down a little, though we are not able to find any definite pathology. There is an endocrine imbalance and many of these may be markedly benefited by capsules of theelol, in 50-rat unit doses, b. i. d. Another of my favorite prescriptions in treatment of these cases is as follows:

Ovarian Subt.	Grs.	5
Des. Thyroid	"	1-6
Pdw. Ext. Hyd.	"	1-2
Pdw. Ext. Nux. Vom.	"	1-6

In each capsule, one capsule t. i. d.

I will not in this brief paper go into the subject of endocrinology. This to me is one of the biggest fields of study and work in office gynecology. I am frank to say that I have gotten more and better results in it than any other internal medicine. The endocrine chain is as strong as the weakest link. It is best compared to a wagon, four wheels and the fifth wheel, any one of which, if out of commission, throws all the rest out.

A few years ago, I had a couple come to my office, saying they wanted a baby and it was seemingly impossible. They had been married two years and never had a normal intercourse. On examination of the patient, I found that she had vaginismus and spasm of the orbicular vaginal muscles. The moment I touched any part of the external genitalia, there would be a spasmodic contraction, and it was almost impossible to introduce the index finger to make a vaginal examination. I gave them a suppository containing a small amount of cocaine and chloretone with instructions to introduce one in the vagina about twenty minutes before having an intercourse. At the same time, I prescribed capsules containing

Sod. Luminal	Grs.	3-4
Ovarian Sub.	"	3
Des. Thy.	"	1-8
Pdw. Ext. Cas. Sag.	"	1

(t. i. d.)

Two months later, on examining this patient, I had no trouble and there was no vaginismus present. At the time the patient was in my office for the second examination, I found her to be about six weeks pregnant. I delivered her at full term, of a normal baby, and so far as I have been able to keep track of her since that time, she has never had any further trouble and has unquestionably been much more contented ever since.

We ofttimes have cases of this type, and if we will take the trouble to investigate, at least one-half of the cases in divorce court are due to sex problems. I believe that we can do more good by correcting some of these problems and that we can continue the integrity of more homes in this way and be of real help to many families.

I think you for your kind attention to this rather rambling and disconnected paper. However, I think we all at times have these problems to face and help to straighten out for our patients.

EARLY DIAGNOSIS

"Knowing what to do or, better, what not to do, would save many lives which are needlessly sacrificed every year because the symptoms are misunderstood and improper treatment is given," Dr. Clarence K. Jones says in discussing "Abdominal Pain" in the April *Hygeia*.

CONSIDERATIONS OF HEART PATHOLOGY*

By IVAN H. SMITH, M. D.
Parkersburg, W. Va.

BRIEFLY let me introduce this paper with a note on some fundamentals in heart anatomy which have aided materially our interpretation of heart disease.

Until recently our process of reasoning has been appreciably hampered by two obsolete notions. The *first* concerns the intrinsic blood supply of the myocardium; the *second* the histological structure of the heart valves. In the past, the coronaries have been designated as end arteries, but convincing demonstrations prove the fallacy of such a belief. Observations which have clarified us of this mistake have been made possible by coronary injections of gelatin and barium with subsequent radiographic plates and actual studies of the injected tree after isolating it from its supporting musculature. It has thus been shown that free anastomoses exist between the smaller vessels of the same and different coronaries; moreover, the right side of the fetal heart has freer anastomoses than the left, but as age goes on with its frequent insidious hypertension and concomitant left ventricular hypertrophy there develops on the left, a life-saving network of anastomotic vessels. It so seems that nature has taken an ingenious method of preparedness for a coronary narrowing with its accompanying ischemia and occasional thrombosis. Conversely the right heart devoid of physiological or pathological stress, such as hypertension, shows no such rich capillary communications and consequently in the aged is quite unprepared to cope with such a pathological strain, as a pneumonia.

Nor are the valves merely avascular endocardial membranes. They likewise have yielded their secrets to the painstaking injection experimenters. The auriculoventricular cusps are permeated by a rich network of vessel channels, which communicate freely with those of the chordae tendinae and papillary muscles. Such communicating plexuses are constant in fetal life and early infancy, but gradually and progressively fade out until at adolescence no traces of vessels are found.

Coincident with the obliterative changes in the blood channels of the A. V. cusps, the muscle fibres of these valves are atrophying, which indicates that a significant relationship exists between the vascular and muscle components. It is interesting to note that the mitral retains its fetal muscle circulatory features longer than the tricuspid. With this in mind the incidence of rheumatic involvement of this valve and the extent of its destruction is readily understood, for where there is obliteration of capillaries in the free edge of a thin valve leaf, what could be a more ideal biological filter and a more fertile media for the retention and growth of bacteria?

Of the semilunar valves, the basal halves alone could be injected, but the pictures so produced led to the belief that with improved technic the results would be different.

From what has been noted, therefore, by laboratory studies, we have definite histological reasons as to why coronary thrombosis is not absolutely fatal, as to why rheumatic fever has a predelection for the mitral valve, and as to why the right heart fails in senile pneumonia.

Consider for a moment *rheumatic fever*. We are dealing with a disease recognized by the ancients for its effect on the joints, but not appreciated until the 19th century for its effect upon the heart. Truthfully it has been said that inflammatory rheumatism is a disease that "licks the joints but bites the heart." Through the decades of this century numerous investigators have isolated various

*Read before the Parkersburg Academy of Medicine, May 4, 1933.

forms of streptococci from rheumatic fever patients. Such descriptive terminologies as streptococcus rheumaticus and streptococcus cardioarthitidis have been used, but it is sufficient to know that an organism allied to the alpha type of streptococcus, be it known by whatever name, is the bacterium cultured in some 50% of cases. The delayed association of subacute bacterial endocarditis with that of rheumatic fever and the isolation of a streptococcus viridans in the former seems more than a coincidence; how true it is that subacute bacterial endocarditis cases may follow imperceptibly upon a rheumatic fever. For the diagnosis of rheumatic heart disease it is not absolutely necessary that a history of joint symptoms be obtained. Recurring attacks of tonsillitis and subsequently the murmur of mitral stenosis is sufficient to tell us that the rheumatic fever streptococcus has been at work. We would not be far wrong in adopting the dictum that all mitral stenosis is of rheumatic origin.

The germs of acute articular rheumatism are seldom if ever cultured from the joints and in view of these negative cultures the question of tissue allergy or hypersensitiveness has been invoked to explain the discrepancy. It is known that if an animal be inoculated intracutaneously with a small quantity of a cultured streptococcus, it is subsequently extremely hypersensitive to even small doses of a similar antigen; violent reactions sometimes are produced. In the light of experimental observations let it be assumed that the lesion on the endocardium is the primary focus promoting a continued allergic state; should the organism or its metabolic products later be showered into the blood stream from infected tonsils, teeth or sinuses, this inherent hypersensitiveness is now manifested by joint swellings and rheumatic nodules, not unlike the signs of serum sickness.

Turn now to *other forms of endocarditis* namely the acute, subacute, and, if you will, the chronic varieties. The acute type may be disposed of by mentioning its characteristic familiar features: (1) the principal organisms involved are staphylococcus aureus, streptococcus haemolyticus and pneumococcus; (2) the secondary nature of the disease following pneumonia, puerperal sepsis, pyemias and even such trivial infections as the common furuncle; (3) the exuberant vegetation produced, with a predelection equal for the aortic and mitral valves, discharging infective emboli, with suppurative lesions as sequelae, (4) designated acute because of its fulminating course with a fatal issue within six weeks, (5) suppurative, ulcerative and malignant have descriptively been applied to this form.

Subacute as the name seems to imply might mean a protracted acute endocarditis, but the invariable association with streptococcus viridans has led both clinician and bacteriologist to look upon the disease as a well-defined entity. The one to two year course terminating in an extremely high mortality rate is appreciated by all those who have dealt with this type. Dr. Oille of Toronto has reported a remarkable epidemic of 23 such cases, with 100% recovery. After four years; needless to say permanent valvular defects were residual in many. Selectivity of valves is again interesting; one series reports 58% mitral involvement alone; 59% aortic and mitral; 16% aortic. The lesion is bulky, tendency to ulceration of the valve is common and extension to the endocardium down along the chordae tendinae is frequently noted. Even rupture of the chordae is by no means rare. Microscopically the vegetation is composed of bacteria and fibrin with some monocytic invasion. Embolic phenomena are a constant accompaniment.

As *chronic types* of endocarditis permit me merely to mention; (1) the marginal thickening of age, as a rule without decompensation; (2) that peculiar type of aortic calcification occasionally seen, with extraordinary stenosis and probably regurgitation. It is remarkable that this lesion may exist with little other evidence of arteriosclerosis; and (3) syphilitic aortic incompetence due partly to deformed cusps but principally to adventitial

involvement with weakening and dilatation of the ring.

The loose term *myocarditis* may convey something to the clinician but is disdained by the pathologist who is thinking histologically of scar tissue, fat deposition and monocytic infiltration. Chronic interstitial myocarditis is a pathological entity manifested, if in extremis, by visible pearly patches, or streakings, of fibrous tissue. That a gradual occlusion of coronaries is incriminated etiologically is well known and explains the more advanced cases. In those cases not detected by the naked eye, the microscope reveals a perivascular fibrosis. Boyd points out that should the fibrous process be distal to the source of nourishment then a malnutrition theory is feasible, but being proximal to blood vessels the malnutrition theory must be laid aside and those perivascular infections, rheumatic fever and syphilis should be duly recognized. Eliminating these forces, there is left that interstitial group accompanying hypertension and explained in two ways: (1) an inadequate blood supply to an overworked myocardium (ischemia), (2) the proverbial toxin theory.

Under chronic myocarditis besides the interstitial type, fatty degeneration of the anemias deserves appropriate mention.

In passing mere mention is made of *acute myocarditis* divided anatomically as it is and with ample reason into the interstitial and parenchymatous types. Rheumatic, syphilitic and suppurative carditis represent the interstitial variety, while diphtheria and typhoid are classical illustrations of the degenerative type. The suppurative cases are secondary to acute infectious processes, whether primarily of endocardium or elsewhere, and due in the majority of instances to the streptococcus, pneumonococcus, staphylococcus, gonococcus and influenza bacillus.

Coronary occlusion towers above all for its dramatic clinical and pathological picture. Progressive narrowing of vessels with anginal attacks precede the terminal picture. The cause of anginal pain continues to be a moot question. Three explanatory theories are offered: (1) pressure on nerve endings in the aortic adventitia from a dilated aorta, (2) coronary spasm, (3) fatigued myocardium. Emboli are rare as a cause for sudden occlusion; syphilitic stricture of the orifices is possible while calcification is paramount. The descending branch of the left coronary is commonly involved, producing infarction of the anterior left ventricle toward the apex. Although recognized at the autopsy table in the days of Harvey not until this century has the disease been recognized during life with any certainty. Sixty to seventy percent mortality rate is average and in the recovery cases it is interesting to note that further anginal pain ofttimes disappears.

There will be brought in tonight a demonstration of typical cardiac lesions, representing fairly well the conditions touched upon in this paper. From these specimens please do not conclude that in every sudden, supposedly cardiac death a classical picture will readily be elicited. Such is not the case, as may be interpreted from Dr. Boyd's appropriate list of the causes of sudden cardiac death, grouped as follows:

A. Myocardial:
(1) Rupture following infarction;
(2) Degeneration following diphtheria.
B. Coronary:
(1) Occlusion, with or without thrombosis.
C. Aortic:
(1) Rupture of aneurism;
(2) Angina pectoris;
(3) Aortic incompetence.
D. Undetermined, but recorded as:
(1) Shock;
(2) Status lymphaticus;
(3) A visitation from God.

DO YOU SNORE?

In an article "Does a Contented Person Snore?" in the April *Hygeia*, Donald A. Laird, studier of snorers observes that one out of every eight persons snores regularly; infants snore commonly; men snore more than women do; and snoring does not have any subconscious cause.

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

Pulmonary tuberculosis of the adult type is rare in children of school age. Though uncommon, the disease when it attacks children is serious. Our knowledge of the course of adult type tuberculosis in the child has been deficient because of the scarcity of published data. Therefore, a review of the cases of pulmonary tuberculosis of the adult type in children and adolescents who have been cared for since 1910 at the State Sanatorium at Westfield, Massachusetts is particularly welcome. Extracts of the report follow.

Clinical Pulmonary Tuberculosis in Children—The 631 cases of adult type pulmonary tuberculosis among children and adolescents (under 18 years of age) treated at the state sanatorium since 1910 are divided into three groups.

1: In the first group are 200 cases admitted from March 1, 1910 to March 1, 1920. No röentgen-ray apparatus was available during this period. The diagnosis was established by the presence of tubercle bacilli in the sputum.

2: The second group comprises 195 cases admitted from March 1, 1920 to March 1, 1927. The diagnosis was made on the röentgen-ray findings, with or without positive sputum. All in this group reacted to the tuberculin test.

3: In the third group are 126 cases admitted from 1929 to 1930. The diagnosis was established as in the previous group. In all groups only patients under eighteen years of age are included.

Salient Features—About 70 per cent of the 395 cases embraced in groups (1) and (2) were girls. The incidence according to age was about the same for both sexes. It was only 18 per cent for children 12 years of age or younger, which confirms the common experience that pulmonary tuberculosis is not a frequent disease in children before their teens.

Almost one-half gave history of contact and the author comments that while the search for tuberculosis among contacts will yield greatest results we should realize that a large number of cases have no known contact and that, therefore, every practical method of case finding should be used.

The mode of onset is almost impossible to determine, in fact the disease in a large percentage of cases progresses before any symptoms are noted. Cough (64 per cent) was the most frequent symptom, and weakness (14 per cent) was next.

Study of the stage of the disease on admission showed a gratifying increase as time progressed, in the percentage of minimal cases. Only 9 per cent of boys and 5 per cent of girls were minimal cases in the first group, while in the third group the ratio was 38 per cent for boys and 28 per cent for girls.

The low percentage of minimal cases in the first group is due to the fact that only positive-sputum cases were included in that group. When the statewide school clinic plan was begun (1924) the percentage of minimal cases increased markedly.

Prognosis is Serious—The prognosis of adult type tuberculosis in children based on the experience of the groups studied is gloomy and the prospects of bettering it are discouraging. Of 200 cases of the first group (1910 to 1920) 158 are known to have died of pulmonary tuberculosis. It should be remembered that this group constituted an unfavorable series since all had positive sputum and 144 of the 200 were classified as advanced on admission.

In the 1920 to 1927 series results were somewhat better because diagnosis aided by the x-ray and tuberculin test was more precise, more rest treatment was given and artificial pneumothorax was used in five cases. Of the 195 cases of this group 125 had positive sputum on admission, 112 were advanced cases, 52 had cavities and 133 had bi-lateral involvement. One would not expect a good result from such a group. At the time of the study, 1932, 133 (68 per cent) were known to be dead. Of the 22 minimal cases none died in the sanatorium but 9 have died since.

Treatment—Patients of the 1910-1920 group were not given bed rest treatment unless there was fever or other symptoms. Gradually, however, rest treatment was extended and by 1927, at least one year of bed treatment was given to all pulmonary cases. While it is too early to give a detailed composite report of the later group it can be said that in the minimal cases the results have been very good —at least temporarily. In a considerable number there has been complete clearing as shown by x-ray and the patients are clinically well. Of 49 moderately advanced cases (admitted from June 1927 to June 1930) 11 died in the sanatorium and of 62 advanced cases 27 died. Apparently prolonged bed rest treatment has been very efficient in many

minimal cases and in a few of the moderately advanced though the mortality of advanced cases remains very high.

Pneumothorax has been in use for the past two years. This offers hope of better results but unfortunately this treatment often cannot be used on account of bi-lateral involvement and adhesions.

In the face of the generally discouraging situation what can be done? The logical procedure is to find tuberculosis while it is early and curable. Clinics should be more widely conducted in the schools with the routine use of the tuberculin test and x-ray. Special emphasis should be placed on the examination of all children known to have been exposed to the disease. The public should be educated to the necessity of prompt treatment for every child in whom a diagnosis of pulmonary tuberculosis has been established.

Certain Aspects of Pulmonary Tuberculosis in Children, Roy Morgan, Am. Rev. of Tuberc., May, 1934.

The records of Negro children in a Connecticut tuberculosis sanatorium for white and colored children were studied. While the data sumbitted do not lend themselves to exact comparison with those reported in the article abstracted above, the general observations are in close accord, and also bring into sharp relief certain characteristics of tuberculosis in Negro children. The article deals with all forms of tuberculosis but only brief extracts of the comments on pulmonary tuberculosis of the adult type are here offered.

Clinical Tuberculosis in Negro Children—The ratio of Negro to white children admitted to the sanatorium is much higher than the ratio of white and Negro children in the general population of the state. There has been one death for about every 25 white children and four deaths for every 25 Negro children admitted.

Negro children with adult type pulmonary tuberculosis of any greater extent than minimal almost invariably failed to recover. No Negro child who ever had positive sputum recovered. The average age of Negro children with adult type pulmonary tuberculosis was 11 years. (For children of the Massachusetts study, most of whom were white, the comparable figure is 14 years.) The average length of illness of those who died was 8 months, whereas white children with similar pathological conditions survived on the average about one year and 7 months.

"The Negro child," says the author, "by the violence of his reaction to primary tuberculous infection, by developing serious tuberculous disease at an earlier age, by the frequency of associated tuberculous lesions or complications, and by earlier surrender to lethal disease, depicts a characteristic picture that is more peculiar to the majority of colored children than to children of the considerably more immunized white race."

Negro children undoubtedly have less resistance to tuberculosis than white children but the study yielded no certain evidence as to what is responsible for such lower resistance. The findings, however, indicate that the lower resistance of Negro children is not due to a lack of childhood infection, an opinion which is held by some. "* * * * we might conjecture that whereas first infection with tubercle bacilli in the white child modifies his resistance to future infections, similar immunological reactions do not occur in all colored children, even though they may develop a state of allergy in so far as positive response to tuberculin is concerned."

Tuberculosis in Negro Children, Cole B. Gibson, Am. Rev. of Tuberc., April, 1934.

APPEAL TO EMOTIONS

"Among the various errors in discipline, one variety which is in common usage is that in which the parent, in his efforts to curb the child to his will, makes a strong play to the child's emotions," Dr. E. S. Rademacher writes in *Hygeia* in his article on "Discipline Through Emotional Appeal."

Many mothers tell of their care in allowing the children opportunities to make their own decisions; but far too many invariably add the time-worn phrase "but if you go, you will break mother's heart." This type of discipline is not confined to adolescents. Parents use it even in the various bits of annoying behavior of small children by implying that if the child persists, "mother will cry."

A lavish display of affection from the child often results from such play on his emotions. This gives parents a certain pleasure and comfort, but parents who resort to this type of affection are simply using the child as a source of satisfaction and exercising a certain sadistic trend in themselves, rather than considering the effect on the child.

KEEPING YOUNG

(EDITOR'S NOTE: From Remarks of DR. V. T. CHURCHMAN, SR., Charleston, before the Kanawha Medical Society on February 13, 1934)

AT the annual supper of this society, I made a few remarks about "Keeping Young" and it seemed to take so well with the "boys" that it put me to thinking and as a result I wish to add a few more remarks which it was impossible for me to make then as the time was so limited.

As you will remember I read from a paper and made these remarks: "You are as young as your faith," I said I had all faith in the medical profession, that it would never desert its ideals; "As young as your confidence and as old as your fear," I said I had all confidence in my profession and no fear of the ultimate results, "As young as your hope, as old as your despair," and again I remarked that I was full of hope and had no reason to despair of the future of our great profession.

These remarks were inspired by the report of our retiring president as to what had been accomplished in the past year. It of necessity made me think of the vast progress that has been made by our profession within the past forty-seven years, or since I first cast my lot among physicians. I can remember when that dreadful scourge diphtheria would strike a community and about 90% of the children infected died. Today we can almost say when a death occurs from this disease, it is somebody's fault, or may be negligence.

Forty-seven years ago men, women and children died by the thousands every year from typhoid fever and today it is absolutely preventable. Just thirty-five years ago, during the Spanish-American war, more soldiers died from typhoid fever than died as a result of battle.

Yellow fever as a sequence of the sacrifice of members of the medical profession has become an almost unknown disease and yet I remember well, how thousands died as a result of this disease, during an epidemic through the southern states, just a few years ago.

Smallpox should be an unknown disease and will be when we have sufficiently educated our people to the point where vaccination will be properly carried out. No child should be admitted to a school who has not been vaccinated against smallpox.

Take in my own line of work. Just a few years ago when we saw patients with an opacity in the lens we told them, they must wait for eventual blindness and then an operation. Today we know a large percentage of these cases of beginning cataract can be corrected without an operation, if taken in time and proper attention paid their general condition.

But what need have I to enumerate more? Is this not enough to give us "confidence" and "faith" in the workers in the field of preventive medicine and does it not arouse a "hope" in us that the day is not far distant when whooping cough, measles, tuberculosis and many other communicable diseases will be classed as absolutely preventable?

Respiratory diseases cause more deaths among children than any other known group. Not long ago I read that pneumonia alone had caused more than 30,000 deaths among children in this country in one year. I have the great "hope" of seeing the day when this dread disease may be conquered. My friends, it is our unbounded "faith" in our brethren in the field of preventive medicine that gives them the courage to go on with their great work.

God help humanity to put more Walter Reeds into the field of preventive medicine!

I am not so enthusiastic about state medicine as some may be, but I do believe that the greatest investment that could be made by our national and state governments, would be to pay a reasonable salary to all men who would be willing to put their time and energies into the field of preventive medicine so that there would be no question of remuneration. I have "faith" and "hope" that the day is not far distant when the United States Public Health Service or some such organization, will be so conducted; when there shall be no limit to their work; when the national and state governments will coöperate in furthering this great question. Do not for one moment believe I favor socialized medicine as it is practiced in Russia, where the public health organization supervises and controls the entire practice of medicine. But the physician of

(Continued on page 282)

PRESIDENT'S PAGE

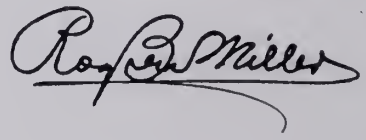
HUNTINGTON MAKES HISTORY

With the largest convention attendance in the history of the Association, the Huntington meeting will go down as one of our most successful and brilliant conventions. Predicted hostilities over the "List" problem failed to materialize. The Association, as it has done so many times in the past, faced this question openly and squarely. The position of organized medicine, stated elsewhere in the JOURNAL, is clear and to the point.

A total of 405 members registered at the Huntington meeting; more than one-third of our entire membership. In past years before the Auxiliary was formed, when it was customary to register the doctors' wives, the registration occasionally went over 500. For the actual registration of members, however, the Huntington meeting carried off all honors.

To mention the success of the Huntington meeting is to pay tribute to the hospitality and enterprise of the Cabell County Medical Society. The program committee, under Dr. R. J. Wilkinson, gave us one of the best scientific programs we have ever had. The mechanical details of the convention were handled with clock-like precision.

On behalf of the West Virginia State Medical Association, I wish to extend the thanks of the entire membership to the Huntington doctors, to the program committee, to the distinguished doctors who made up our program and to all those in any way responsible for the success of the Huntington meeting.



President.

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NEW OFFICIAL FAMILY

Dr. R. H. Walker, Charleston, was elected President of the West Virginia State Medical Association at the Huntington meeting. He will serve as President-elect until January 1, 1935, at which time he will take over the duties of President from Dr. Roy Ben Miller.

Other officers for 1935, elected at the Huntington meeting were Dr. W. W. Strange, first vice-president; Dr. Robert C. Hood, Clarksburg, second vice-president, and Dr. T. M. Barber, Charleston, treasurer. Dr. Robert King Buford, Charleston, was selected as chairman of the Committee on Scientific Work with Dr. B. S. Brake, Clarksburg and Dr. Fred A. Brown, Huntington, as members.

Dr. James R. Bloss, Huntington, was re-elected as A. M. A. delegate with Dr. Walter E. Vest as alternate. With the elevation of Dr. Walker to the presidency, Dr. Howard T. Phillips, Wheeling, was selected as A. M. A. delegate in his place with Dr. Ivan Fawcett, Wheeling, as his alternate.

Two new councillors were elected at Huntington. Dr. E. P. Smith, Fairmont, was elected to succeed Dr. J. E. Offner and Dr. W. G. Harper, Martinsburg, was elected to succeed Dr. T. K. Oates. Dr. W. T. Gocke, Clarksburg, Dr. W. R. Goff, Parkersburg, Dr. B. S. Clements, Matoaka, and Dr. G. G. Irwin, Charleston, were elected to succeed themselves.

Wheeling was selected as the meeting place for our 1935 convention.

Committee assignments included the election of Dr. C. C. Romine, Morgantown, and Dr. G. R. Miller, Fairview, on the Committee on Professional Relations. Dr. C. O. Henry was reelected chairman of the committee on Necrology. Dr. Howard T. Phillips, Dr. C. B. Wylie and Dr. S. L. Cherry were elected on the Committee on Medical Education.

R. H. WALKER, M. D., F. A. C. S., Charleston

Beyond question, the Huntington meeting was one of the finest and most successful gatherings of medical men in the history of the state. In the way of scientific merit there was little left to be desired. The hospitality of the Cabell County Medical Society gave the meeting an atmosphere of neighborliness that contributed largely to the success of the convention. The various hospital clinics, a new convention feature, also added a consid-

erable part to the interest of the visiting doctors.

The total registration was 405 members, the largest in the history of the Association. On one or two previous occasions prior to the formation of the Woman's Auxiliary, when it was customary to register the doctors' wives, the total registration reached close to the 500 mark. However the Huntington meeting eclipsed all others in the number of actual members with more than one-third of the entire membership in attendance.

100 PERCENT SOCIETIES

The total membership of the West Virginia State Medical Association is now 1087, with less than 60 delinquents. As we still have seven months more to go on our 1934 membership, it appears that we may break all previous membership records this year.

The purpose of this editorial is to recognize the societies and their secretaries that reported their membership 100 percent paid up prior to the Huntington meeting. Top honors go to Kanawha and Harrison counties. Kanawha increased its membership from 124 to 138 during the past year. The Harrison and Kanawha societies are two of the largest in the state. Dr. Andrew Amick, Charleston, is secretary of the Kanawha society and Dr. E. B. Wright, Clarksburg, is secretary of the Harrison society.

Other societies with 100 percent paid up membership include Barbour-Randolph-Tucker, Parkersburg, Central West Virginia, Doddridge, Grant-Hardy-Hampshire-Mineral, Lewis, Mason and Wyoming. With one exception, no society in the state has more than four delinquent members at the present time. Creditable membership increases have been registered by Brooke with 7, Cabell with 12, Fayette with 10, Greenbrier Valley with 6, Kanawha with 14, Marshall with 4, McDowell with 3, Mercer with 9, Parkersburg with 6, Raleigh with 10 and Wyoming with 5.

District honors were carried off by the Third Councillor district, headed by Dr. W. T. Gocke, Clarksburg, and Dr. M. T. Morrison, Sutton. The third district reported an increase of 13 members with no delinquent members in the entire district.

ACTION ON LIST PRACTICE

Since the Huntington meeting there has been considerable misunderstanding relative to the action of the Association on list hospital practice. As the complete report of the various convention transactions will not be published until the July issue of the JOURNAL we quote herewith the resolution adopted by the Council at a special meeting held at the Pritchard Hotel on the morning of May 15:

"WHEREAS, the Council of the West Virginia State Medical Association, in regular session at Huntington, hereby recognizes that the House of Delegates of said Association did, by unanimous vote on June 21, 1932, record its disapproval of the present plan of list hospital practice; especially recording disapproval of that part in which the employee is required to contribute to a fund to defray hospital, medical and surgical care for injuries received in line of duty that properly should be paid for by the state compensation fund, and

"WHEREAS, said Council, on August 2, 1932, authorized an investigation of the alleged abuses, the investigation being made by the American College of Surgeons, and

"WHEREAS, the Council, in a called meeting at Charleston on December 30, 1932, read the report of the College; which report recorded disapproval of the named abuse, and voted unanimously its disapproval of the compensation abuses, and

"WHEREAS, the report of the College was further submitted to the House of Delegates in regular session at Charleston on May 23, 1933, and by an almost unanimous vote the

House voiced its disapproval of the Compensation abuses,

"*Now be it Resolved*, that the Council of the West Virginia State Medical Association, in regular session in Huntington, acting under authority granted under Section 3, Chapter 7, of the by-laws of the West Virginia State Medical Association, does hereby condemn the methods used by these hospitals that enter into contracts with employers of labor, who require their employees to contribute to a fund to defray hospital, medical and surgical service for industrial injuries that properly belong under the state compensation department, and

"*Recognizing* that the county society has primary jurisdiction in the regulation of its membership,

"*Be it Further Resolved*, that the Council urgently recommend to the individual county societies that they take such action as may be considered necessary by them to correct this and any other abuses that now exist or that may later develop in connection with list practice."

Following the adoption of the above resolution, a second resolution was adopted creating a special committee of five to confer with industry, labor, and with the various list hospitals in the hope of working out a satisfactory solution of this problem. Appointed on this committee were Drs. C. R. Ogden, Clarksburg, chairman; W. S. Fulton, Wheeling; Ray M. Bobbitt, Huntington; R. H. Walker, Charleston and J. Ross Hunter, Charleston.

We hope there will be no further misunderstanding in regard to the position which our Association has taken. Our fight is against the compensation abuses of list hospital practice. We have never condemned contract practice in the coal fields and small isolated industrial towns, except in those cases wherein the employers of labor have used the medical "check-off" for illegitimate profit.

We have in our possession a number of bulletins issued by the West Virginia Coal Operator's Association and the Pocahontas Operator's Association. These bulletins specifically set forth that our Association is outlining an extensive campaign "against hospital list contract practice and employment of company doctors." We feel that the operators are endeavoring to convey the idea to their employees and to mine union officials that organized medicine is campaigning against the interests of organized labor. It is sufficient to say that the Association is *not* campaigning "against hospital list contract practice and employment of company physicians." Instead we *are* campaigning against the compensation abuses of the former. We hope we have made our position clear.

During the next six months a series of conferences will be held throughout the southern part of the state with coal associations, industrial leaders, labor organizations, hospitals and all others interested in any phase of list hospital practice. It is our hope that a constructive program satisfactory to all parties concerned will be agreed upon to correct the abuses which now exist. Undue or extravagant criticism, either by medical or industrial organizations, will only serve to make the work of our conference committee more difficult during the coming months. We urge every doctor, at least for the time being, to "stand by" and give the Committee every opportunity to work with a free hand.

ANNOUNCEMENT

The Gynecean Hospital Institute of Gynecologic Research of the University of Pennsylvania, is conducting an intensive study of families into which congenitally malformed individuals have been born.

Special interest centers in families in which malformations have appeared in two or more children. Physicians who have knowledge of any such families are urged to communicate with Dr. Douglas P. Murphy, Gynecean Hospital Institute, University of Pennsylvania, Philadelphia, Pa.

OBITURARIES

DR. WALTER M. BABB

Dr. Walter Milton Babb, prominent Keyser physician and president of the Grant, Hardy, Hampshire, Mineral County Medical Society, died suddenly at his home on March 25 following a heart attack. He was 63 years of age. Surviving are his widow and one son, Walter M. Babb, Jr., a student at Cornell University. One brother and one sister also survive.

Dr. Babb was a native of Grant county. He graduated in medicine from the University of Pennsylvania and located in Pittsburgh where he practiced several years. He moved to Keyser in 1905 and remained there until his death. He was one of the best known and most successful practitioners in his section of the state.

DR. MARTIN V. GODBEY

Following an illness of several weeks, Dr. M. V. Godbey, 55, of Charleston, former superintendent of the McKendree Emergency Hospital, died of a heart ailment on April 26. He is survived by his widow, one daughter and one son. A brother, Dr. J. Q. Godbey of Winfield, also survives.

Dr. Godbey studied medicine at the Maryland Medical College and first practiced in Boone county, later moving to Charleston where he served in the legislature, the state senate and as a member of the state board of health. After the World War, he located in Texas but returned to Charleston and received the appointment as superintendent of the McKendree Hospital from Governor Gore. After leaving McKendree he opened the Godbey Hospital in West Charleston last year.

DR. OLIN H. JENNINGS

Dr. Olin Henry Jennings, prominent Williamson physician, died at Morganton, North Carolina, of pneumonia on March 24. He was 45 years of age. Dr. Jennings had been removed to a sanitarium at Morganton for rest following a nervous disorder and contracted pneumonia enroute.

Dr. Jennings, a native of North Carolina, was graduated from the Jefferson Medical College in 1916 and was licensed in West Virginia the same year. He moved to Williamson about 15 years ago and built up a successful practice there. He served at one time as county health officer and was city health officer at the time of his death.

Surviving Dr. Jennings are his widow and two sons.

KEEPING YOUNG

(Continued from page 277)

today must carry on that our government may see the need of such work.

Why should we look upon life as a mountain which takes a man forty or fifty years to climb and then to be beset by some degenerative disease which causes him to put on skis and in a few short years he rapidly descends until he strikes bottom with a thud, passes on into eternity and is soon forgotten?

Why is it not possible to find men who will devote their lives to the study of these degenerative diseases and in time conquer them? Much work has been done along these lines; the intensive study of cancer has done much for humanity, but to my mind only the surface has been scratched away and there yet remains the digging in to this subject until we know its causes and are able to combat this terrible disease in its incipiency. I have the "faith" and "hope" that this will soon take place and even cancer will become known as a preventable disease.

It is true the expectancy of life has greatly increased within the past forty-seven years, but my friends, this increased expectancy is due to the greatly improved conditions of child life. Forty years ago the expectancy of child life was very small compared to what it is today, by reason of the fact that we have learned to check many communicable diseases and in some cases even eradicate them. Yet with it all, we have done but little to increase the expectancy of life during man's most productive years.

As I look upon it, the physician of today must no longer be the emergency man of a few years ago, but he must be the guardian of the public health. He must become the educator of the human race and each person becomes his pupil from birth and remains so through life. It is our duty to educate the public to this material change that is taking place.

I have "faith" and "hope" yet to see the paths that are being traveled in our search for medical knowledge converge into one great harmonized unit to alleviate the sufferings of man during his mature age, and check that terrific speed down the

sloping side of life to that pit of eternity where each and every one of us must finally go.

These end results can be obtained only by a united, untiring and thorough work of medical men and those in scientific research of interrelating factors.

In our legislative halls we will find men who will oppose financing these great movements. Why should these men be allowed to devote their entire time and energies to the material benefits that may accrue to the human race and at the same time sacrifice those things that would materially benefit health? Of what use are the great material benefits of science to mankind when they may only be enjoyed by sick people?

The greatest enjoyment in life is "good health" and I have "faith" and "hope" enough in the medical profession, to believe that in a world-sense, the day is not far distant when the layman will have first in his mind "good health", and will see that all roads leading to that goal are well-paved and without a speed limit as no one traveling that road will have a return ticket.

Mr. President, I wish it understood that I, in no way reflect upon the great work that has been done along these lines, but rather have I written these few words that I might give some strength to our "faith", "hope" and "confidence" in our chosen profession.

Neither have I said what I might want to say along lines of proper education of the public and the need for their coöperation. Neither have I mentioned what proper attention would amount to from a business or financial standpoint.

I consider these questions will naturally arise as we carefully consider the great work of our profession.

Now, I hope each of us will go away from this meeting with an all-momentous question in his mind and with a determination to answer the same conscientiously, not in words, but in deeds for the future.

And that question is "What shall I do to further the cause of health and happiness from this day forward?"

In closing I, as one of the organizers of the Kanawha Medical Society, wish that each and every one of you may retain your "faith", "hope" and "confidence" in your chosen profession and thus "Keep Young."

COUNTY SOCIETY NEWS

PARKERSBURG ACADEMY

The May 3 meeting of the Academy of Medicine of Parkersburg was held at the City Hospital, Parkersburg, and was devoted entirely to business matters. No scientific program was arranged, and the greater part of the time was given over to Dr. Roy Ben Miller, State President, who discussed the major medical and economic problems confronting the profession.

A complete financial statement was made by the secretary, showing all receipts and expenditures of the year. The membership was reported 100 percent paid up.

Welch England, *Secretary*.

FAYETTE COUNTY

The monthly meeting of the Fayette County Medical Society was held at the Hotel Hill, Oak Hill, on the evening of April 10 with a good attendance. Dr. W. P. Bittinger, president, presided. On motion of Dr. W. V. Wilkerson, a communication was sent to Governor Kump protesting the possible action of the State Board of Education in discontinuing the regular work leading to the Master of Arts degree at New River State College.

The scientific program was presented by Dr. A. M. Price, Charleston, of the Bureau of Rural Sanitation of the State Health Department. His subject was "Control of Communicable Diseases," with incidence and mortality graphically illustrated by slides. Discussion was opened by Dr. H. H. Puckett, Fayette county health officer, followed by Dr. A. E. McClue, state commissioner of health.

Ralph Hogshead, *Secretary*.

KANAWHA COUNTY

The regular May meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of May 8 with an excellent attendance.

The scientific program was presented by Dr. H. G. Thompson and Dr. M. F. Petersen, both of Charleston. Dr. Thompson read a paper on "Diabetes in the Adult," with Dr. Philip Preiser leading the discussion. Dr. Petersen's paper was on "Diabetes in Children," with Dr. R. D. Roller leading the discussion. Both papers were interesting and instructive.

Dr. Vernon L. Peterson, of Rochester, Minnesota, who for the past four years has been a Fellow of the Mayo Clinic, has located in Charleston and is in charge of the x-ray department at the Charleston General Hospital.

A. E. AMICK, *Secretary.*

OHIO COUNTY

Dr. John H. Neff of the University of Virginia hospital was the scientific essayist at the April 13 meeting of the Ohio County Medical Society which was held at the Ohio Valley General Hospital. Dr. Neff spoke on the subject, "Experience with Malignant Tumors of the Kidney." Discussion was opened by Dr. William C. D. McCuskey, Dr. Richard D. Gill and Dr. A. L. Jones. Dr. William T. McClure, President, presided.

RUSSELL C. BOND, *Secretary.*

CABELL COUNTY

The May 10 meeting of the Cabell County Medical Society was held at the Pritchard Hotel, Huntington, and was devoted exclusively to business matters. Final plans for the state meeting were completed and a number of other matters disposed of.

EDWIN MATTHEWS, *Secretary.*

CENTRAL WEST VIRGINIA

The regular meeting of the Central West Virginia Medical Society was held at the St. Nicholas Hotel, Summersville, on Wednesday evening, May 2, with 35 members and guests in attendance. Dinner was served by the Baptist Ladies' Aid Society.

Following the regular business session, Dr. Martin L. Bonar, Charleston, gave a paper on "Skin Troubles of Youth." Dr. George A. Grisinger, also of Charleston, then presented a paper on "The Diagnosis and Treatment of Liver and Bile Tract Infections."

An interesting informal discussion followed the presentation of the papers, both of which were quite interesting and instructive.

EUGENE S. BROWN, *Secretary.*

MARSHALL COUNTY

The Marshall County Medical Society held its regular meeting Tuesday, March 13, at the Merry Tavern, Moundsville. The meeting was called to order by the President, and Dr. S. M. Simon of Logan, was introduced.

He gave a splendid paper on recent advances and treatment of tuberculosis, mentioning that it was still a great problem, that the country physician Koch, in 1882, showed the way to experiment on this disease.

Much has been done in this field, differentiation of the germ itself as to the various strains and sorts of the bacillus. The Mantoux intradermal or subcutaneous method appears to be more correct than the Von Pirquet test, which is very much used today. The Von Pirquet is more reliable in children. The doctor also mentioned that we are still dealing with the three strains of the bacillus: Human, Bovine and Avian type, and they also have other strains which are pathogenic and non-pathogenic. The primary form does not necessarily have to be taken into the body by the lungs, but can be transmitted through the intestinal canal. The x-ray and the tuberculin test are most valuable in early diagnosis, especially would we have great difficulty in making a diagnosis when we have no activity. Surgery is sometimes more valuable than medicine in many cases for a cure.

The deaths in the United States are largely due to tuberculosis and heart disease—being about equal. In making an early diagnosis, remember the following: History, symptoms, physical examination, x-ray and tuberculin test. In taking the history, get the family history, contact with tubercular patients, occupation, hours of work, mine, factory, kind of social life, sleep, home environment, mental disease, operations, diseases of childhood and so on, spitting of blood and other acute diseases, symptoms, dysphagia, pain, shortness of breath, insomnia, temperature, pulse, vasomotor disturbances, palpitation, basal metabolic rate, glands, eyes, chest for prominent ribs, Harrison grooves, changes in the muscles, deformities, blood, skin and the physical examination. Treatment was outlined and the paper was discussed by Drs. Covert, Ashworth, Peck, Cooper, Benson, Weiler, Bickel, Morginson and many others.

After the closing of the paper, a chicken dinner was served. A full membership was in attendance, with many visitors from Wheeling, Cameron and McMechen.

Dr. Howard Weiler of Wheeling was the essayist at the April 17 meeting of the Society which was also held at the Merry Tavern. His subject was "Orthopedic Surgery for the Practitioner," and dealt with the education of the general practitioner in orthopedic surgery. Physicians

from Moundsville, Wheeling, Benwood, McMechen and Sistersville were in attendance.

J. A. STRIEBICH, *Secretary.*

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society was held at the Morgantown Country Club on the evening of April 3, with Dr. B. M. Stout, President, presiding. Prior to the scientific program a dinner was served to the doctors and guests.

The essayist of the evening was Dr. J. L. Blanton of Fairmont who spoke on "Diagnosis and Treatment of Acute Anterior Poliomyelitis." This was a most interesting paper and was freely discussed by the members present.

G. R. MAXWELL, *Secretary.*

MERCER-McDOWELL

A joint meeting of the Mercer and McDowell County Medical Societies was held at Welch on May 9 with a good attendance from both societies. Following a short business session, Dr. R. O. Rogers, Bluefield, read a very interesting paper on "Agranulocytic Angina," illustrated with lantern slides and graphs. His paper was freely discussed.

During the business session of the Mercer society, Dr. J. W. Calvert, Lamar; Dr. Ben W. Bird, Jr., Princeton; and Dr. O. S. Hare, Bluefield, were elected to membership.

A very enjoyable Dutch luncheon was served following the business and scientific programs.

R. R. STUART, *Secretary.*

TYLER-WETZEL

The regular meeting of the Tyler-Wetzel Bi-County Medical Society was held May 11, 1934, in the War Memorial Building, New Martinsville. The meeting was called to order at 8:15 o'clock with Dr. V. H. Kemper, President, presiding.

The essayists of the evening were Dr. G. C. Weil, orthopedic surgeon of the Mercy Hospital, Pittsburgh, who gave an illustrated lecture on "Fractures of the Femur, Simple and Compound." He discussed the methods of reduction, both open and closed. Dr. Weil's paper was discussed by Dr. J. O. Rankin of Wheeling and later was thrown open for general discussion. Dr. Weil also gave a lecture illustrated by a moving picture on "The Treatment of Non-Union Fractures by Modern Bone Grafting."

The other essayist was Dr. J. P. Henry, also of the Mercy Hospital, Pittsburgh, who demonstrated the "Injection Treatment of Varicose Veins." Dr. Henry recently completed 25,000 injection treatments of varicose veins and, thus far, has had no fatalities. Both papers were well received and very instructive.

The nurses of District No. 1 of the West Virginia State Nurses Association served lunch to those present. There were 37 doctors in attendance.

TRI-COUNTY MEETING

Approximately 100 physicians of Monongalia, Marion, Preston and Harrison counties attended the tri-county medical society meeting at the Morgantown County Club on the evening of May 1. A banquet was held at the club, followed by the scientific program.

The essayists of the evening were Dr. E. J. C. Beardsley and Dr. Edward J. Klopp, both of the Jefferson Medical College, Philadelphia. Dr. Beardsley spoke on "The Golden Rule in Medicine," and Dr. Klopp on "The Preparation for a Surgical Career." During the afternoon, clinics were conducted at the county hospital by Dr. Klopp and Dr. Beardsley.

G. R. MAXWELL, *Secretary.*

COMING MEETINGS

The thirty-fifth annual meeting of the American Proctologic Society will be held in Cleveland on Monday and Tuesday, June 11-12, 1934, with headquarters at the Hotel Cleveland. The secretary is Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pennsylvania.

The annual meeting for the American Association for the Study of Goiter will be held in Cleveland on June 7-9, 1934, just prior to the opening of the annual meeting of the American Medical Association. The secretary is Dr. J. R. Young, Terra Haute, Indiana.

The seventh annual graduate fortnight of the New York Academy of Medicine has just been scheduled for October 22 to November 2. A complete program and registration blank may be secured by addressing Dr. Frederick P. Reynolds, 2 East 103rd Street, New York City.

GENERAL NEWS

WISCONSIN'S INSANE PROBLEM

A 10-year program of improvement in the care of mental patients has been mapped out in Wisconsin in the hope that at the end of that period, Wisconsin will lead the United States in the field of mental hygiene. Recent disclosures of a special legislative investigating committee revealed many abuses, including the beating and choking of patients, and recommended more than 50 institution heads for dismissal.

The state of Virginia has recently completed a lengthy and scholarly report on the proposed receiving system and hospitalization needs of their institutions for mental patients. This report was prepared by the department of public welfare at the request of the General Hospital Board of Virginia. The report reveals numerous distressing conditions with recommendations for their correction.

The problem of adequate institutional care for mental patients is of vital concern to West Virginia, as well as to Wisconsin and Virginia. The work of the West Virginia State Medical Association toward correcting the situation in this state is well known. It has made some progress, but in the opinion of most physicians, the surface has hardly been scratched at the present time. Apparently Wisconsin has more than her share of trouble in this regard, as evinced from the following news dispatch from the April 15 issue of the *Indianapolis Sunday Star:*

"Plans to place Wisconsin ahead of all other states in the care of its insane are growing out of its current revelation and correction of the abuse of patients in state institutions.

"Dr. William F. Lorenz, noted University of Wisconsin psychiatrist, who heads the governor's committee investigating these institutions, is behind the plan to improve the mental hygiene of the state and the treatment of its defectives.

"The legislative committee, which has uncovered the beating, choking and other abuse of patients and has recommended dismissal of more than fifty institution heads and staff members, will try to bring about revised laws and increased appropriations to insure better conditions.

"The plan under consideration provides for a centralized receiving institution which would have first care of all mental cases. During their brief residence there, a diagnosis would determine whether individual cases should be sent to one of the state hospitals or returned to a county institution. This plan, rejected by the 1933 legislature, should attract greater support in 1935 because of the recent exposures.

"At the present time the state hospitals are crowded with cases which the investigators believe belong back in the county asylums. This overcrowding of the institutions where there are the best facilities for rehabilitating broken minds deprives many cases there of the amount of attention required to improve or cure their mental condition.

"Cleaning out of inefficient personnel which is being forced by current disclosures is expected to bring the state's present institutions to their highest degree of efficiency. A new system of assigning them only the type of patients for which they are fitted and freeing them from past overcrowding should increase that efficiency greatly.

"Return of logical cases to county institutions would be accompanied by a new development there. County physicians who now are concerned only with the physical well-being of county home inmates would attend a week's course in mental treatments at the state's central institution each year under the new plan.

"These county physicians also are general practitioners. After three or four years of brief postgraduate courses in psychiatry and allied treatment, this training would be reflected in their private practices. The anticipated result is that Wisconsin, ten years from now, will have a better outlook on mental hygiene than any other state in the Union."

MEDICAL GOLFERS IN CLEVELAND

The American Medical Golfing Association will hold its twentieth annual tournament at the Mayfield Country Club in Cleveland on Monday, June 11, 1934.

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events. The trophies include the Association Championship for thirty-six holes gross, the Association Handicap Championship for thirty-six holes net, the Choice Score Handicap Championship for thirty-six holes gross, the low gross Eighteen Hole Championship, the low net Eighteen Hole Handicap Championship, the Maturity Event limited to Fellows over 60 years of age, the Oldguard Championship limited to competition of past presidents, and the Kickers Handicap. Other events and prizes will be announced at the first tee.

Dr. Homer K. Nicoll of Chicago is president and Dr. Charles Lukens of Toledo and Dr. John W. Powers of Milwaukee are vice-presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis, and now totals 1,100 members representing every state in the union.

The Cleveland committee is under the chairmanship of Dr. John B. Morgan, 1301 Medical Arts Building, Cleveland, Ohio. He will be assisted by Drs. R. H. Birge, A. V. Boysen, E. F. Freedman, F. T. Gallagher, Secord Large, E. P. McNamee, J. J. Marek, Theodore Miller, U. V. Purtman and M. A. Thomas.

The Mayfield Country Club of Cleveland is described by Chairman Morgan as "probably the finest course in the district, and certainly one of the most interesting. Many championships have been held on this course, and I am sure the visiting doctors will be delighted with it in every sense of the word."

OPTICAL COMPANY ENJOINED

A corporation may not practice optometry, it was ruled by Judge A. P. Hudson in the Kanawha county circuit court recently in deciding the case of W. T. Eisensmith and others against the Buhl Optical company and the O. J. Morrison Department stores. Judge Hudson ruled that a decree be prepared enjoining both defendants from practicing optometry in West Virginia.

The case was instituted by the plaintiffs in an effort to prevent the Buhl Optical company of Pittsburgh from further practice of optometry in Charleston, where it had been leasing floor space from the O. J. Morrison department store and employing a licensed optometrist at a weekly salary and a small commission on excess sales.

Judge Hudson in a memorandum of his findings in the case, stated that the code requires every optometrist to practice under his own name. In the case at issue, he declared that owing to the fact that optometrists employed by the Buhl Optical company could be dismissed at the pleasure of either of the defendants, the optometrists were deprived of the sense of responsibility which an optometrist would have if he were conducting his own business.

The decision of the Kanawha court has attracted considerable interest in medical circles, as the question is closely allied to the corporate practice of medicine.

APPROVAL OF HOSPITALS

Of interest to the medical profession is the following resolution recently adopted by the House of Delegates of the Missouri State Medical Association:

"WHEREAS, definite policies are now in operation and in the process of development in various parts of the country, with the object of attaining the coöperation of hospitals, clinics, medical colleges and like institutions, in observing the economic and ethical principles enunciated by component local societies in affiliation with the Missouri State Medical Association, and

"WHEREAS, as a result of the promulgation of these policies by component units of the Missouri State Medical Association, definite 'approved lists' of hospitals, clinics, medical colleges, and like institutions are properly being compiled, therefore be it

"*Resolved*, that the Missouri State Medical Association memorialize the American Medical Association, and instruct its delegates thereto, to request the American Medical Association to adopt policies by which the American Medical Association shall not approve any institution for any purpose unless and until such institution shall be officially in the approved list of the component medical society or societies in the jurisdiction of which such hospital or institution is located or operates. Any institution failing of approval of the society or societies concerned shall have the right of appeal to and hearing before the proper committee of the American Medical Association."

CINCINNATI HOSPITAL MEET

A number of West Virginia doctors were represented on the program of the Tri-State Hospital Convention which was held in Cincinnati on April 17, 18 and 19, 1934. The convention was made up of Hospital Association members from Ohio, Kentucky and West Virginia.

West Virginians who participated in the program included Dr. T. K. Oates, Martinsburg, president of the Hospital Association of West Virginia; Dr. A. P. Butt, Elkins; Dr. Albert H. Hoge, Bluefield; Dr. B. I. Golden, Elkins; Mrs. Katheryn Trent, Charleston; Miss Ruth E. MacMaster, Huntington; Mr. John Hart, Charleston, and Mr. Joe W. Savage, Charleston.

WOMAN'S AUXILIARY

STATE MEETING OF WOMAN'S AUXILIARY

The tenth annual meeting of the Woman's Auxiliary to the West Virginia State Medical Association was a most memorable gathering that will long be talked of and relived. The members of the Cabell county auxiliary were delightful hostesses, proof of which were the lovely luncheons, style show and tea arranged by them.

The Auxiliary Convention opened on Monday night with an informal reception after which the local Auxiliary entertained the visitors with a display of summer fashions by charming mannequins.

On Tuesday morning a general business meeting was held followed by a luncheon at the Huntington Woman's Club. During the luncheon Dr. W. S. Fulton, Dr. Albert H. Hoge and Dr. D. A. MacGregor gave short talks which were particularly interesting as well as instructive. Later in the afternoon Mrs. R. J. Wilkinson invited all members of the State Auxiliary and visitors to her home for tea. The appointments were beautiful and a most enjoyable hour was spent by those present renewing old acquaintances and making new ones.

Wednesday morning the officers of the Auxiliary to the State Association for the coming year were elected as follows:

President—Mrs. M. F. Petersen, Charleston.

President-elect—Mrs. S. M. Prunty, Parkersburg.

Vice President—Mrs. L. E. Steele, Logan.

Secretary—Mrs. J. S. Klumpp, Huntington.

Treasurer—Mrs. C. C. Romine, Morgantown.

Editor—Mrs. H. P. Evans, Keystone.

Chairman of Program Committee—Mrs. V. E. Holcombe, Charleston.

Mrs. M. F. Petersen of Charleston succeeds Mrs. Frank V. Langfitt of Clarksburg as president. After the elections were concluded the new president made her committee appointments for the ensuing year.

Luncheon was served after the business meeting at the Parish House at which time Mrs. M. F. Petersen was formally presented to the Auxiliary as their president for the coming year. Also at this time resolutions of appreciation were extended to all those who had in any way aided in the success of the meeting.

The program was closed on Wednesday evening by the dinner-dance and floor show in the ball room of the Pritchard Hotel.

MARION COUNTY

The Woman's Auxiliary to Marion County Medical Society held its April meeting at the home of Dr. and Mrs. K. Y. Swisher, Fairview, W. Va. Mrs. Amos H. Stevens, President, presided over the meeting with thirteen members and one guest present.

During the program Mrs. James B. Clinton reviewed the book "The Natives Return".

The Auxiliary elected the following delegates and alternates to the state meeting: Mrs. E. P. Smith and Mrs. E. D. Wise, delegates; Mrs. J. R. Tuckwiller and Mrs. G. H. Traugh, alternates.

The officers for the coming year were also nominated and elected as follows:

President—Mrs. A. H. Stevens.

1st Vice President—Mrs. H. S. Keister.

2nd Vice President—Mrs. E. D. Wise.

Secretary-Treasurer—Mrs. H. V. Thomas.

The Marion County Auxiliary has made possible the purchase of eight books by the city library and has presented two dogwood trees for the grounds of the nurses' home of the Cook hospital.

There being no further business, the meeting was adjourned until a later date.

MRS. H. V. THOMAS, *Corresponding Sec'y.*

CABELL COUNTY

The Woman's Auxiliary to the Cabell County Medical Society met on April 9, 1934 at the home of Mrs. Karl Prichard with Mrs. Gilbert A. Ratcliff, President, presiding over 23 members who were present.

Plans for the state meeting were made and discussed and various committees were appointed to carry out the plans of the Auxiliary for the entertainment of their guests during the convention.

Twenty-one subscriptions to the magazine "Hygeia" were secured during the business meeting.

There being no further business, the meeting was adjourned to reconvene at a later date.

ELIZABETH H. ROBINSON, *Cor. Sec'y.*

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha County Medical Society held its May meeting on Tuesday evening, May 8th, at 8 p. m. at the home of Dr. and Mrs. Robert B. Price. Mrs. O. H. Bobbitt,

President, was the presiding officer over 21 members and one guest who were present.

Mrs. Randolph L. Anderson gave a talk on the George Washington Foundation at Berkeley Springs, W. Va. Mrs. Mendeloff reviewed the book, "One Hundred Million Guinea Pigs." Mrs. W. S. Shepherd read a paper before the meeting entitled "Child Month."

During the business meeting the delegates to the convention were appointed as follows: Mrs. M. L. Dillon, Mrs. John W. Moore. The alternates were: Mrs. I. P. Champe, Jr., and Mrs. J. U. Rohr.

The meeting was then adjourned to reconvene at a later date.

MRS. J. E. RUCKER, *Cor. Sec'y.*

McDOWELL COUNTY

The Woman's Auxiliary to the McDowell County Medical Society held a meeting April 11, 1934 at the Appalachian Community Rooms, Welch, with fourteen members present.

A luncheon was served by Mrs. C. R. Hughes and Mrs. H. P. Evans which was followed by the business session in charge of Mrs. R. V. Shanklin who presided for Mrs. W. B. Stevens, President.

Delegates and alternates to the state meeting were elected and following this the nominating committee gave its report and the officers were elected as follows to serve one year:

President—Mrs. W. B. Stevens, Kimball, W. Va.; President-elect—Mrs. E. Vermillion, Welch, W. Va.; 1st Vice President—Mrs. G. L. Straub, Welch, W. Va.; Second Vice President—Mrs. W. P. Beane, Keystone, W. Va.; 3rd Vice President—Mrs. W. L. Peck, Coalwood, W. Va.; Secretary—Mrs. N. F. Coulon, Gary, W. Va.; Treasurer, Mrs. W. E. Dickerson, Welch, W. Va.

There being no other business, the meeting adjourned.

MRS. W. F. COULON, *Secretary.*

LOGAN COUNTY

Mrs. M. F. Petersen, President of the State Auxiliary to the West Virginia State Medical Association, made a trip to Logan on May 9, 1934 to organize an Auxiliary to the Logan County Medical Society. The meeting was conducted at the home of Dr. and Mrs. L. E. Steele and the following officers were elected:

President—Mrs. B. D. Smith, Omar, W. Va.

1st Vice President—Mrs. J. W. Lyons, Holden.

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2nd Vice President—Mrs. Harold Van Hoose, Whitman.

3rd Vice President—Mrs. J. E. Whitehill, Earling.

Secretary—Mrs. E. H. Starcher, Omar.

Corresponding Secretary — Mrs. David T. Moore, Stirrat.

Treasurer—Mrs. J. L. Patterson, Holden.

Mrs. Petersen reported that the members were all very enthusiastic and eager to go ahead with their plans.

NEIGHBORING JOURNALS

SKILL REQUIRED BY DOCTORS

In a recent decision in a suit against a physician for alleged malpractice, the Supreme Court of Connecticut placed a new and significant interpretation on the universally recognized rule that a physician in the treatment of patients should exercise the average degree of skill, care and diligence exercised by members of his profession in the same and similar localities.

The Connecticut court in its opinion declared that it is not unreasonable to require that the physician have and exercise the skill of physicians and surgeons in similar localities in the same general neighborhood, and that, "*under modern conditions there is perhaps less reason than formerly for the restriction of the skill required to that possessed by physicians and surgeons in the same locality, since there is no lack of opportunity for the physician or surgeon in smaller communities to keep abreast of the advances made in his profession and to be familiar with the latest methods and practices adopted.*"

Excluding entirely the legal angles, this dictum touches on one of the essential factors in the advancement and maintenance of the high standards of medical practice generally.

For years, leaders in medicine have emphasized the importance of constant and continuous effort on the part of members of the medical profession themselves to increase their knowledge of scientific medicine and their skill in the practice of medicine. It has been said that when the physician ceases to try to learn more about the intricacies of modern scientific medicine and to improve his skill in application of that knowledge, he has reached a point where retirement from active practice is indicated.

As the Connecticut tribunal has pointed out, under modern conditions there is little, if any, excuse for any physician not availing himself of the numerous opportunities offered for keeping abreast of the advances and progress of medicine.

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The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

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JAMES R. BLOSS, *Editor-in-Chief* .. . . . . Huntington

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ENTERED AS SECOND-CLASS MATTER, JANUARY 1, 1926, AT THE POST OFFICE AT CHARLESTON, WEST VIRGINIA

Vol. XXX — JULY, 1934 — No. 7

INFANT MORTALITY STUDIES IN WEST VIRGINIA*

By GEO. M. LYON, M. D.
Huntington, West Virginia

Introduction: Twelve counties of West Virginia were selected as indicated on the accompanying map (Fig. 1), namely Logan, McDowell, Kanawha, Cabell, Monongalia, Mineral, Jefferson, Gilmer, Pleasants, Pendleton, Marshall and Ohio. A detailed description of the individual characteristics of each county is given as a supplement of this report.

This method of "sampling" represented an appropriate cross section of the state. It included the various extremes to be found within the state as well as counties considered to be rather characteristic of the "midway" county of the state. This of necessity required the consideration of such important factors as geographic endowment, industrial and occupational characteristics, urban and rural distribution, population characteristics, etc. All these having been taken into consideration, the selection of counties was made so that the "composite" may be considered as truly characteristic of the state as a whole.

Huntington, the largest city in the state, was selected for study as an example of an urban area.

The qualitative analysis of infant deaths as entered on the death certificates does not afford entirely adequate information, particularly as to causes of deaths in the age groups 0-1 mo. and 1 mo.-2 yr. In this study I have attempted a different approach to the problem. By studying total child deaths for the age-groups 0-1 mo., 1 mo.-2 yr. and 2-6 yr., on a seasonal basis over a 10-year period, rather suggestive evidence may be derived from the excess variations of the curves, as to the rôle played by extremes of seasons and as to the relative importance of respiratory and intestinal diseases as active influences on child death rates at various age levels from birth to six years. In an attempt to analyze the causes of the high infant death rate in West Virginia, such a technique has not been applied previous to this study. Poor obstetrics, lack of adequate medical care within the period of infancy proper, lack of sanitation and other factors too numerous to mention, have been cited as the explanation for West Virginia's high infant death rate. Such statements have not been made as the result of a scientific study of the situation. They are

*Presented to Section I, West Virginia White House Conference on Child Health and Protection, May 28-30, 1933.

** The reproduction of the charts has been assisted by F.E.R.A. Project 6-142 Cabell county and the author is appreciative of this valuable assistance.

merely representative of the opinions of certain individuals based upon their own observations. From studies of reported diarrheal deaths (Fig. 2), the State Department of Public Health has shown that diarrhea is in West Virginia an important factor in deaths occurring in the first two years of life. The importance of neonatal deaths has similarly been pointed out by the same agency. The relative rôle which each plays in the production of the high infant mortality rate has not been so clearly set out, nor has it been made sufficiently clear as to wherein corrective endeavor might be more effectively or less effectively applied. It is known that attempts to reduce neonatal death rates have generally not been productive of the dramatic results already shown to be possible of accomplishment in the period of infancy proper (1 mo.-2 yr.).

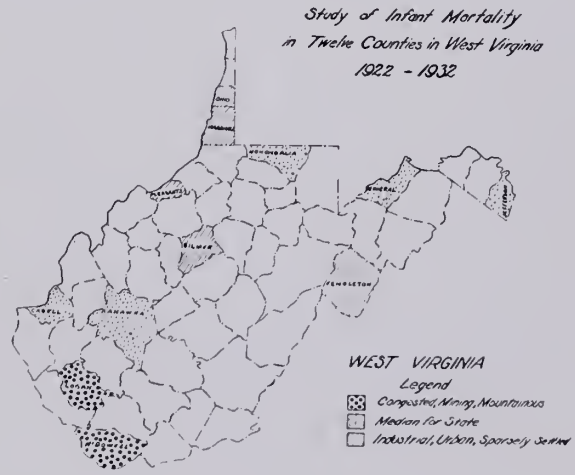


FIG. 1

Neonatal deaths are due almost entirely to environmental influences active in the antenatal or intranatal period. Exclusive of neonatal deaths, infant deaths are due largely to infections (respiratory and intestinal). It is possible to gain valuable information of a qualitative nature at a given age-group level by ascertaining the average number of deaths per 100,000 population for each month in the year for a 10-year period. This may be graphically shown by plotting them so as to show seasonal curve characteristics obtaining for that period. An example is presented (Fig. 3,) of how a mortality curve for the period 0-1 yr. may not yield the valuable information which is afforded when the same data is chartered on a 0-1 mo. and 1 mo.-1 yr. age-group basis.

When neonatal deaths (0-1 mo.), infant deaths (1 mo.-2 yr.) and runabout deaths (2-6 yr.) are plotted in this manner the seasonal excesses in each group give reliable information as to the rôle played by the various factors accompanying seasonal changes.

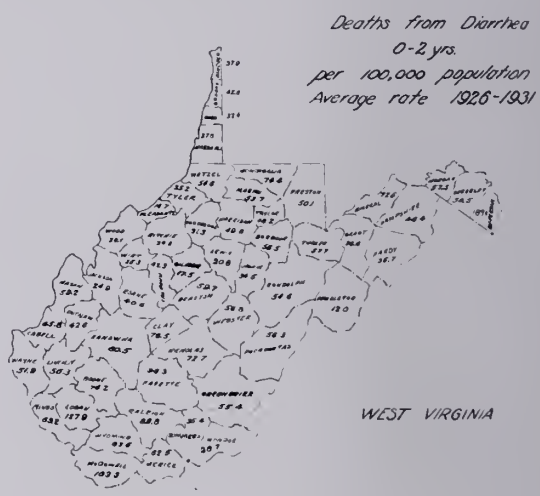


FIG. 2

Seasonal curves at various age-group levels tend to give a correction for some of the distorting factors which are to be encountered in a qualitative study of death certificates in West Virginia. Respiratory and other parenteral infections in infants almost generally present a diarrhea as an outstanding symptom. In West Virginia such deaths are not infrequently erroneously attributed to "diarrhea" or "enteritis" primarily. Bacillary dysentery in children frequently produces a meningismus so marked as to make a central nervous system disease seem the major cause of sickness. Such deaths are frequently reported as "meningitis". This situation is particularly apt to occur in the rapidly fatal cases of dysentery so commonly observed in West Virginia. A terminal bronchitis in the long drawn-out emaciated, poorly handled dysentery case generally gives findings which per-

mit some West Virginia physicians to report it as bronchopneumonia or tuberculosis. I have repeatedly seen cases of this type diagnosed and reported as tuberculosis, and on rhea are not very accurately reported in West Virginia. Many physicians fail to understand the full significance of "bloody flux", its real cause and its peculiar clinical characteristics.

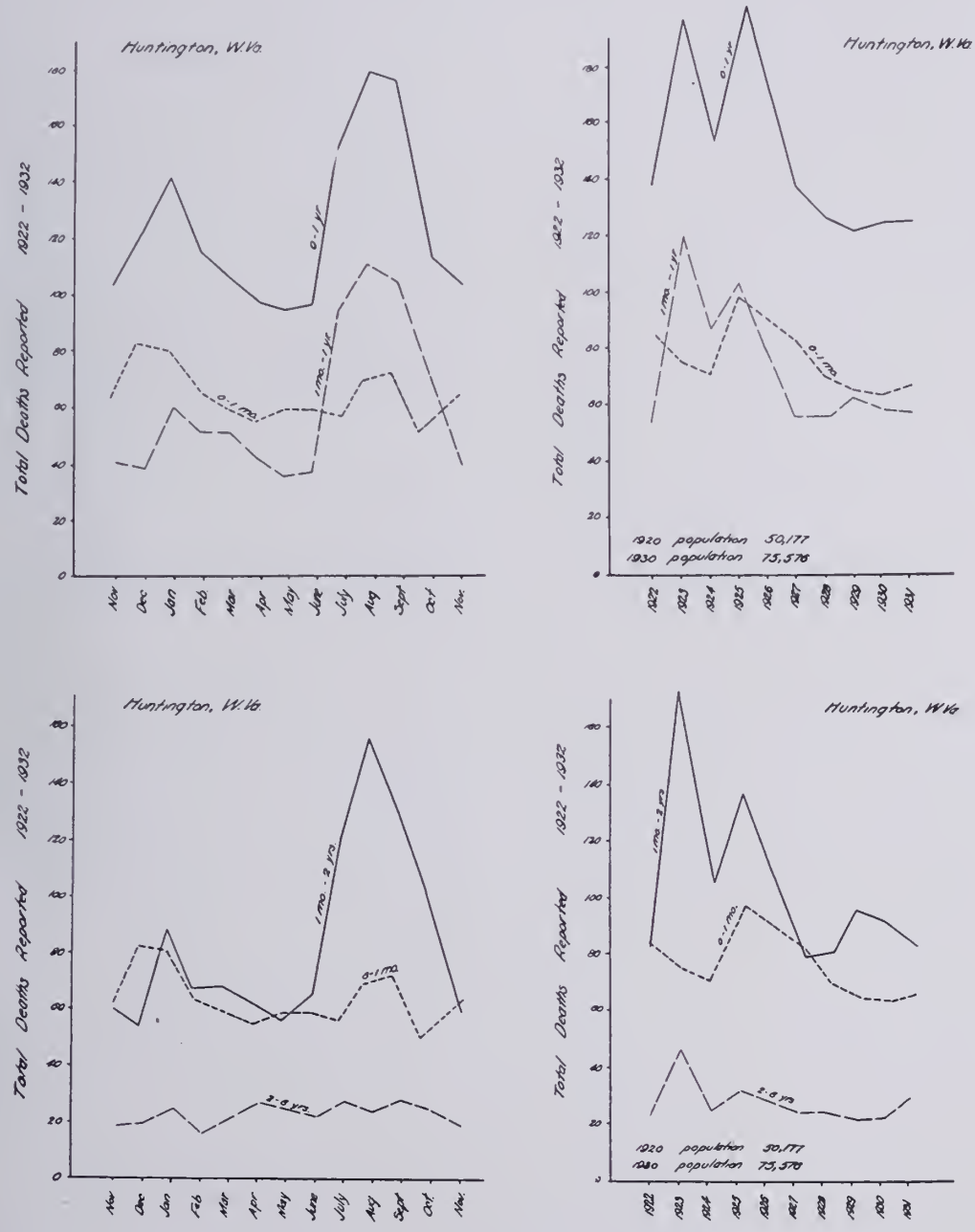

Huntington, W.Va.
Total Deaths Reported 1922 - 1932
0-1 yr.
1 mo. - 1 yr.
0-1 mo.
1 mo. - 3 yrs.
2-9 yrs.
1920 population 50,177
1930 population 75,570
Nov Dec Jan Feb Mar Apr May June July Aug Sept Oct Nov
1922 1923 1924 1925 1926 1927 1928 1929 1930 1931

FIG. 3

numerous occasions in the presence of some meningismus I have even seen these cases reported as tuberculous meningitis. Such diagnoses have by no means been limited to the rural physicians either. By and large, deaths from bacillary dysentery and infectious diar- The failure of individual physicians to appreciate this has been largely responsible for the failure of communities and industrial leaders to realize the importance of proper sanitation and the rôle it plays in influencing infant death rates primarily and public health gen-

erally. In all fairness to West Virginia physicians, however, a condition which is so commonplace in West Virginia as to be an almost daily problem, is all too inadequately treated in text-books of medicine. Few of them indeed present bacillary dysentery or infectious diarrhea in its proper light. This is bound to be confusing.

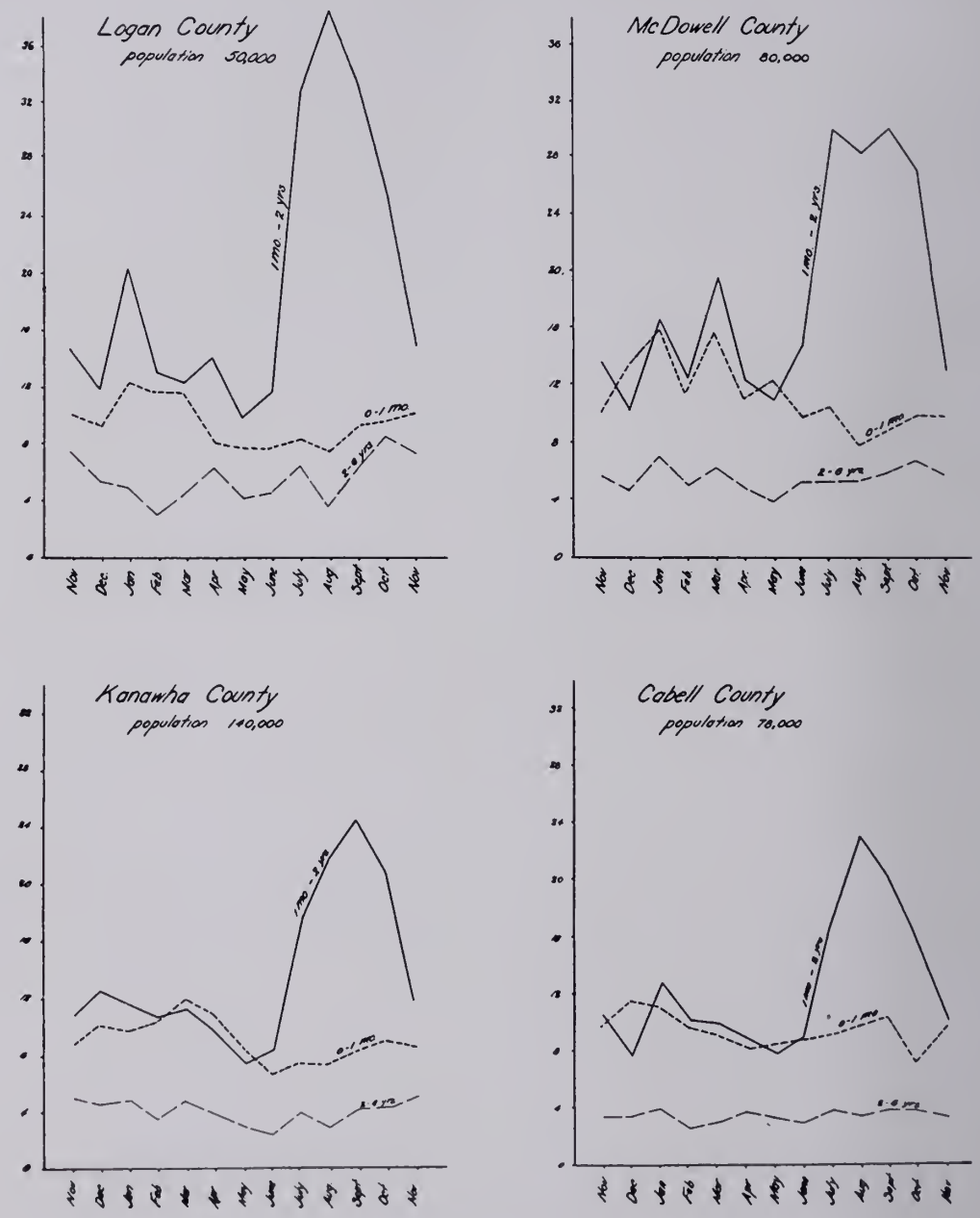


FIG. 4. Average number of deaths per 100,000 population by months for the decade 1923-1932

West Virginia's Gross Infant Mortality Rate: In West Virginia the gross infant (0-1 yr.) mortality rate is very high. In 1930 it was 81 per 1,000 live births and was exceeded by only four states. In 1931 it was 77.2 and was exceeded by only six states. In 1932 it was 75.3 and was exceeded by only three states.

While West Virginia's infant death rate tends to be but slightly in excess of the states which adjoin it, the infant diarrhea death rate (0-2 yr.) is from two to three times that of

the adjoining states. Of the states adjoining West Virginia, for the years 1926-1932, Maryland had the highest rate. West Virginia's diarrheal death rate under two years was twice that of Maryland for the same period, however.

states, it was exceeded by five in 1932. The death rate for all ages in West Virginia is essentially the same as that for the country at large. A higher infant death rate must be compensated for in some measure, therefore by a lower rate after infancy.

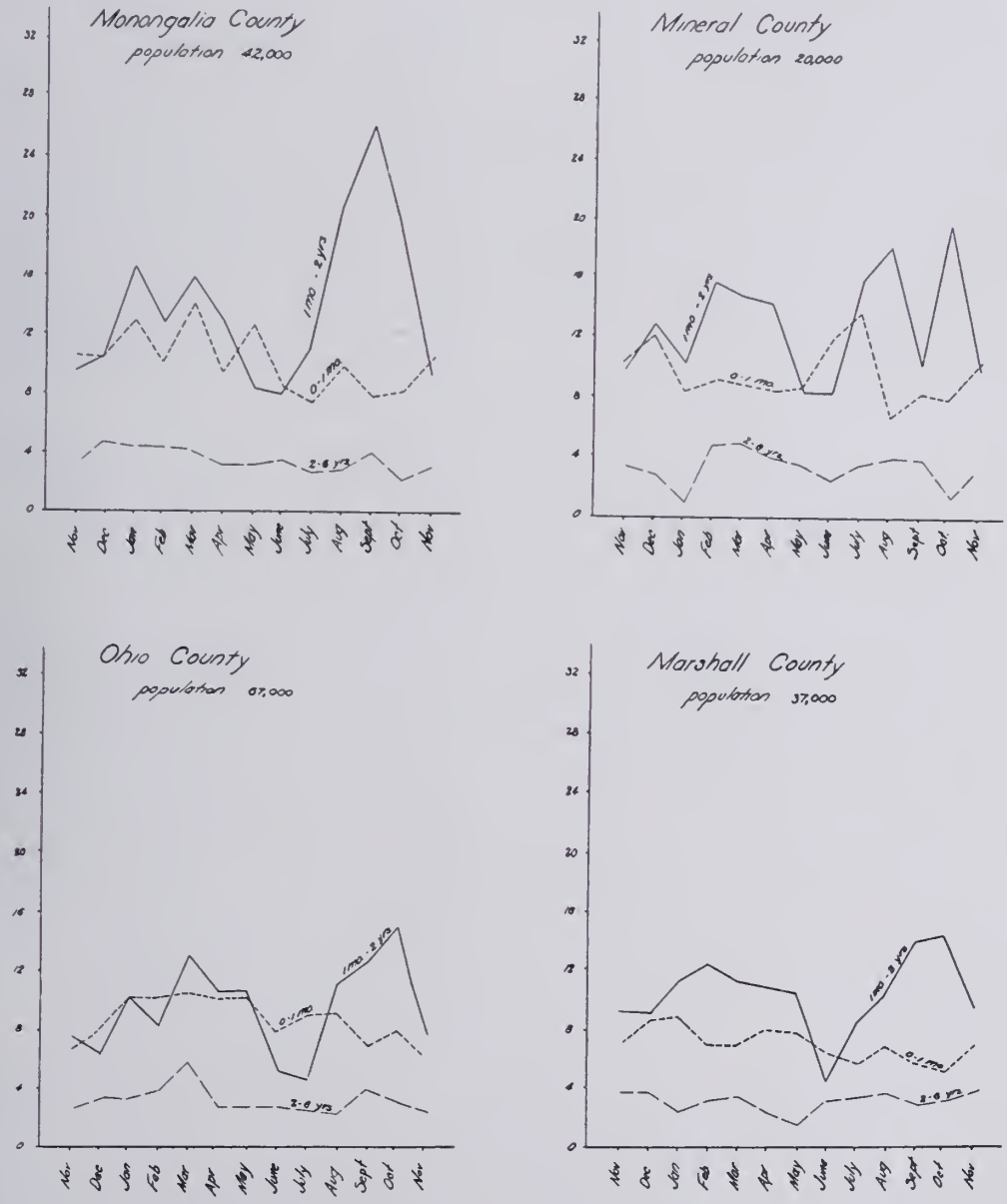


FIG. 5. Average number of deaths per 100,000 population by months for the decade 1923-1932

It is well to note here that West Virginia generally has a high birth rate, reporting in 1930, 24 births per 1,000 population. This was exceeded only by New Mexico with 28.5 and Utah with 25.4, while in 1931 West Virginia's birth rate was exceeded by only four

West Virginia's Urban Infant Mortality Rate: West Virginia's urban infant (0-1 yr.) mortality rate is very high. In 1930, 43 states reported in the U. S. Birth Registration Area. West Virginia reported an urban infant mortality rate of 99 infant deaths per 1,000 live

births and in this was exceeded by only one state—New Mexico with 125. The averages for all cities reporting was 66.2.

In 1931, 45 states reported. West Virginia reported an urban rate of 92 and in this was exceeded only by South Carolina with 95 and New Mexico with 119. The average for all cities reporting was 61.0.

In 1932, 45 states reported. West Virginia reported an urban rate of 92 and in this was exceeded only by South Carolina with 95 and New Mexico with 102. The average for all cities reporting was 56.8. These high urban rates in West Virginia are not the result of hospitals drawing patients to urban centers. In Charleston only, has this been an important factor.

METHOD OF STUDY

1. *Individual Counties by Seasons:* Each of the 12 counties was studied individually and curves were plotted for child deaths for the age-groups 0-1 mo., 1 mo.-2 yr. and 2-6 yr., showing the average number of deaths by months per 100,000 population for the decade 1923-1932, (Fig. 4-6). The population was estimated on the basis of changes taking place between the 1920 and the 1930 census. In all charts made, fine broken line means 0-1 mo., solid line 1 mo.-2 yr., and heavy broken line 0-6 yr.

2. *Comparable Groups of Counties by Seasons:* The 12 counties were divided into three groups with those characterized by extreme conditions being placed in Groups A and C. A median cross section was represented by Group B. For each of the three county groups (A, B and C) curves were plotted for the age-groups 0-1 mo., 1 mo.-2 yr. and 2-6 yr., showing the average number of deaths by months per 100,000 population for the decade, 1923-1933 (Fig. 7).

Group A (Logan, McDowell) is characterized by an extensive coal mining industry, little agriculture, rugged mountains with steep untillable sides, and the population is concentrated in an urban type of congestion along narrow creek bottoms in camps where there is a gross lack of proper sanitation, with a low socio-economic status prevailing and with a general lack of "forward-looking" social attitudes, etc. For the most part, the people are native born Americans, not of foreign stock and the colored population is less than 7% of the total. For the decade, the average total population of Group A was 130,000.

Group B (Kanawha, Cabell, Monongalia, Mineral, Jefferson) presents both urban and rural conditions with some mining, some agriculture, some industry and with counties that are both sparsely and densely populated, etc. The racial stock is essentially the same as that of Group A. This group would be representative of the "midway" county of the State. The average total population of Group B was 300,000.

Group C (Gilmer, Pleasants, Pendleton, Marshall, Ohio) includes the highest type of industrial and social structure to be found within the state, (Marshall and Ohio) as well as some of the lowest as to industrial and social advantages (Gilmer and Pendleton). As a group, the counties in Group C do not present the extremes of geographic endowment (rugged hills, difficulty of tillage, extreme summer heat), to the marked degree they are encountered in those of Group A. There is likewise, with the exception of Ohio and Marshall counties, a lack of density of population in the counties of Group C. The racial stock is almost entirely native born, white Americans. The average total population of Group C was 130,000.

One may feel therefore, that the three groups of counties are truly suitable for rational comparison. The low percentage of colored and foreign racial strains, even in the mining sections is remarkable and of importance.

3. *Total Deaths, 12 Counties, ages 0-6 yr., by Groups, by Seasons:* Curves were made for total child deaths in the 12 counties for the age-groups 0-1 mo., 1 mo.-2 yr. and 2-6 yr., per month per 100,000 population for the decade 1923-1932, (Fig. 7).

4. *An Urban Area by Seasons:* Curves were made for child deaths in Huntington for the age-groups 0-1 mo., 1 mo.-2 yr. and 2-6 yr., per month per 100,000 population for the decade 1923-1932, (Fig. 8). Likewise seasonal trends were charted as compared to 1,000 live births (Fig. 8), 1922-1932. Live births and still births were compared on a monthly basis (Fig. 8), 1927-1932.

5. *Individual Counties by Yearly Trends:* Using the same age-groups as before, a curve was plotted for each of the 12 counties showing total deaths per year for each county for the decade, 1923-1932 (Fig. 9-10). The population trend was charted for each curve. In doing this it was assumed that the mean of deaths reported for 1923-1924 would be acceptable as a starting point for the population trend curve which was based on the 1920-1930 census changes for that particular county.

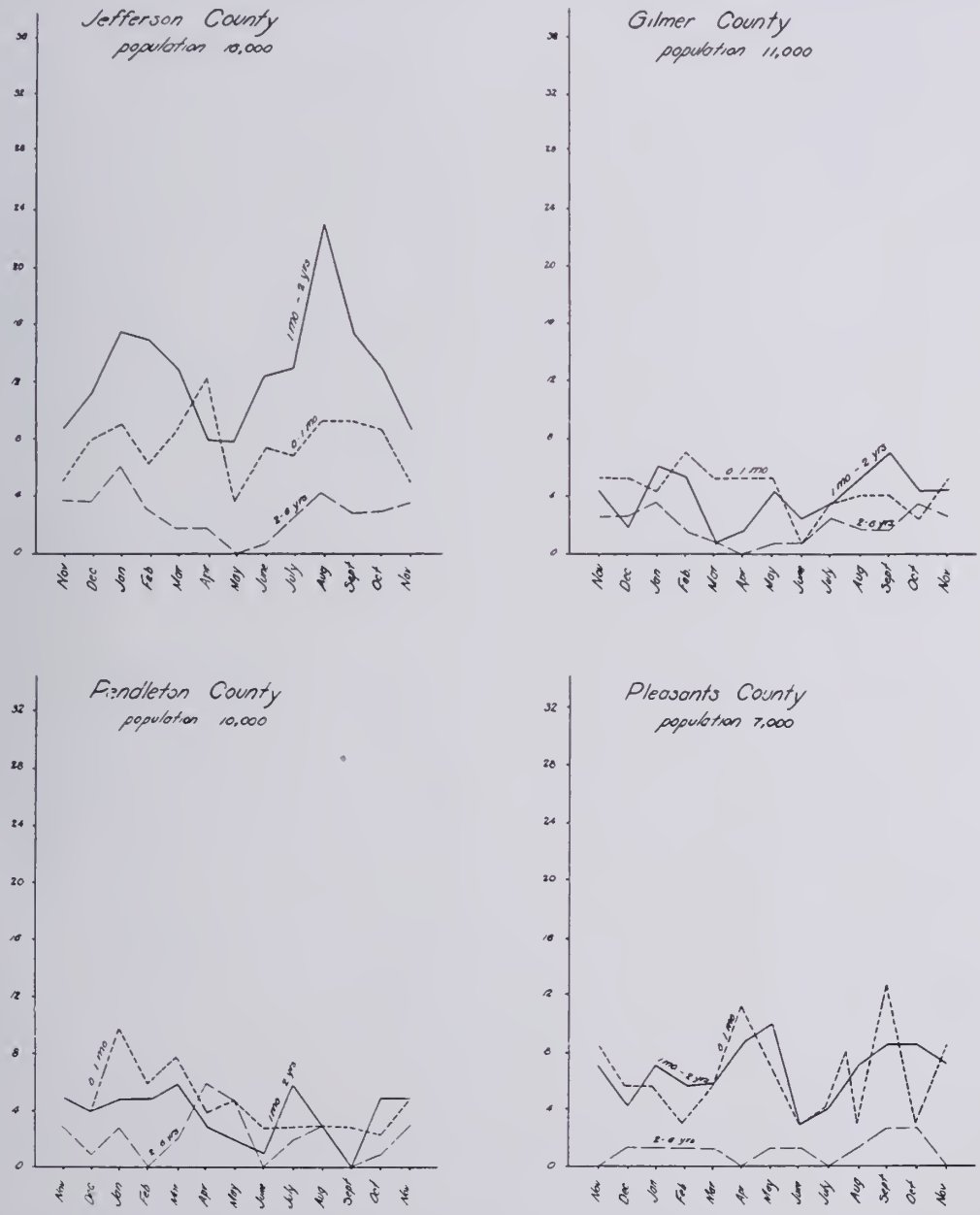


FIG. 6. Average number of deaths per 100,000 population by months for the decade 1923-1932

6. *Comparable County Groups by Yearly Trends:* Using the same age-groups as before, a curve was plotted for each of the county groups A, B and C showing total deaths per year for each county group for the decade, 1923-1933 (Fig. 11). The population trend was charted for each curve using the mean of reported deaths for 1923 and 1924 as a starting point for the population trend which was based on the 1920-1930 census change for that particular county group.

7. *Total Deaths, 12 Counties, ages 0-6 yr. by Age-Groups, by Years:* Using the same age-groups as before, curves were plotted showing total deaths per year for the entire 12 counties for the decade, 1923-1933, (Fig. 11). The population trend was charted as before.

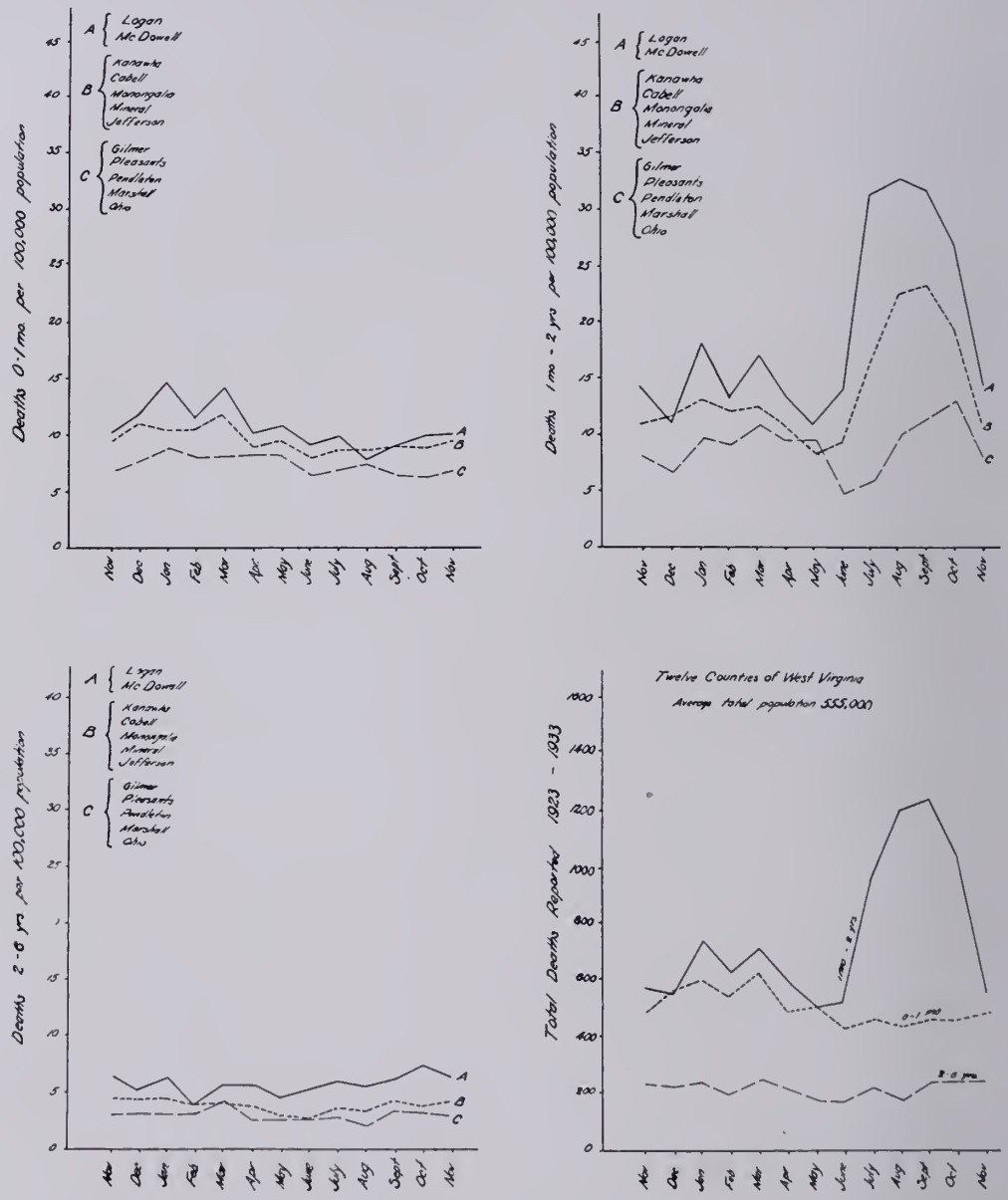

A Logan McDowell
B Kanawha Cabell Monongalia Mineral Jefferson
C Gilmer Pleasants Pendleton Marshall Ohio
Deaths 0-1 mo per 100,000 population
Deaths 1 mo - 2 yrs per 100,000 population
Deaths 2-6 yrs per 100,000 population
Twelve Counties of West Virginia
Average total population 555,000
Total Deaths Reported 1923 - 1933
Nov Dec Jan Feb Mar Apr May June July Aug Sept Oct Nov

FIG. 7

8. *An Urban Area by Yearly Trends:* Using the same age-groups as before, curves were plotted for total child deaths in Huntington per year for the decade 1922-1932 (Fig. 8), in order that actual yearly trends might be compared with the estimated population trends. The yearly number of deaths

per 1,000 live births was charted (Fig. 8). Live births, still births and neonatal deaths were compared on a yearly basis (Fig. 8), 1922-1932.

OBSERVATIONS AND CONSIDERATIONS

1. *Individual Counties by Seasons.* (a) *Neonatal period (0-1 mo.):* Mortality curves for the West Virginia counties studied showed quite regularly a higher neonatal rate in the winter months than in the summer. In most counties there was a smaller, but significant rise in the summer months. The higher winter rate was probably in large part due to the effects of the extreme weather and the prevalence of respiratory infections. This influence may be active directly upon the mother in the carrying period and indirectly upon the infant before birth (antenatal) or during birth (intranatal) or may be active directly upon the child after birth (postnatal).

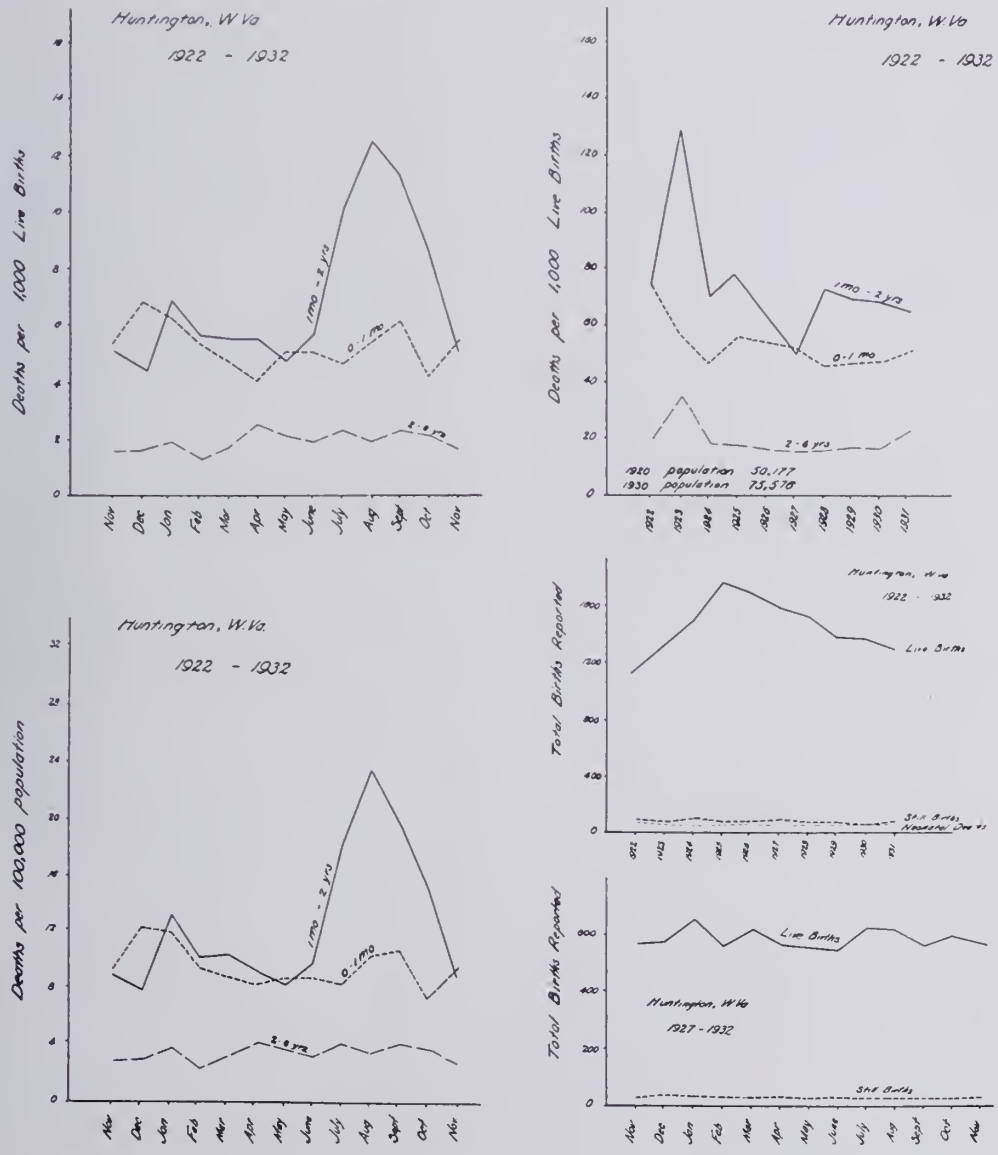


FIG. 8

The highest average yearly neonatal death rate for the decade was reported by McDowell with a rate of 141 followed by Logan and Mineral with 125 each, (Fig. 12). Gilmer and Pendleton each reported a low of 58. The mining counties were highest and the sparsely settled rural counties with the

counties of large urban population presenting rates somewhat in excess of the midway between the two extremes reported. It is interesting to note (Fig. 12) that the neonatal rate was from 55% to 96% higher in the mining sections than in the sparsely settled, extremely rural counties.

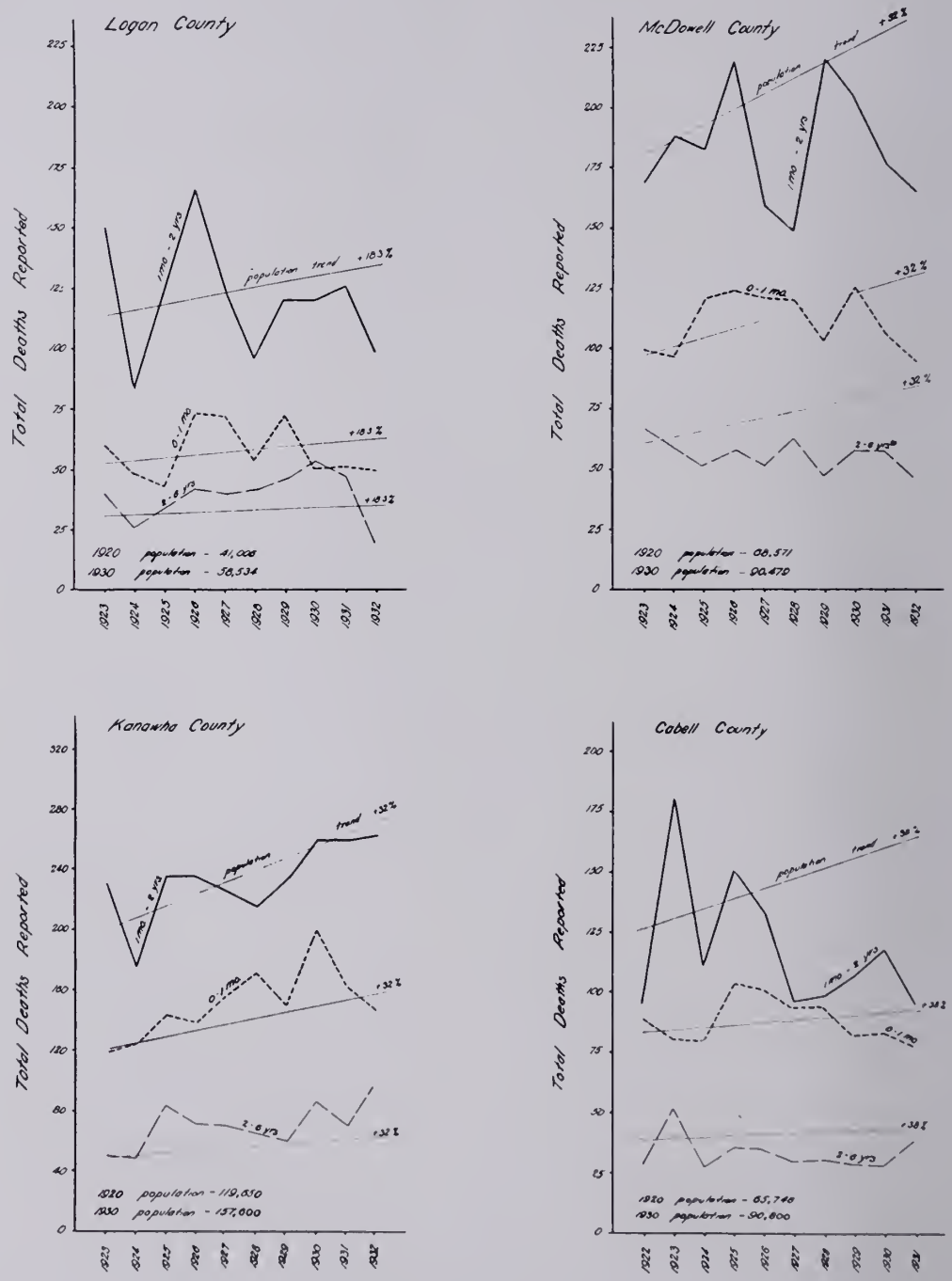


FIG. 9

(b) *Infant period (1 mo.-2 yr.):* Curves for this period regularly showed two peaks. The greater one occurred in the summer and the lesser in the winter. In Kanawha, McDowell, Cabell, Logan and Monongalia counties (coal mining or in close proximity thereto) the summer peak was greatly in excess of the yearly average for the county for the decade and much higher than the

winter peak. In Ohio, Mineral, Marshall and Jefferson the summer peak was not great, being but slightly higher than the winter peak. In Gilmer, Pleasants and Pendleton counties, the summer rate was but little higher than the average for the county for the year and no great excess peaks were observed for any season.

The highest average yearly infant death rate for the decade was reported by Logan with a rate of 243, closely followed by McDowell with 232 and Monongalia and Mineral with 175 each, (Fig. 12). Gilmer with 51 and Pendleton with 47 were the lowest. The mining counties were again the highest and the sparsely settled rural counties were

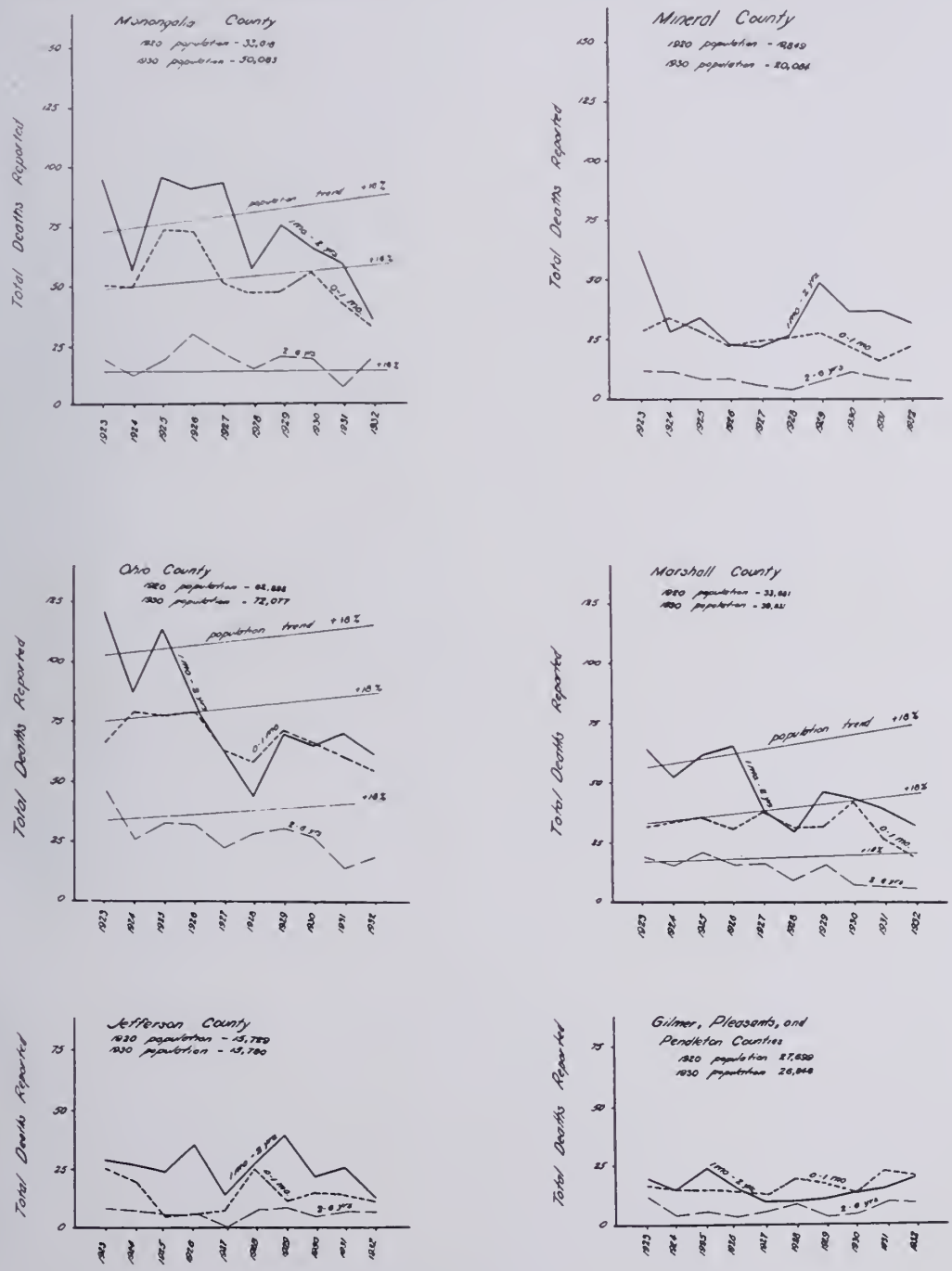


FIG. 10

the lowest. The counties of large urban population again occupied a position somewhat in excess of the midway between the two extremes. It is interesting to note (Fig. 12) that the rate for the period of infancy proper is from 50% to 150% higher in the coal mining counties than in the sparsely settled extremely rural counties, while urban Ohio county reported a rate of only 20% more than that of the low sparsely settled rural counties.

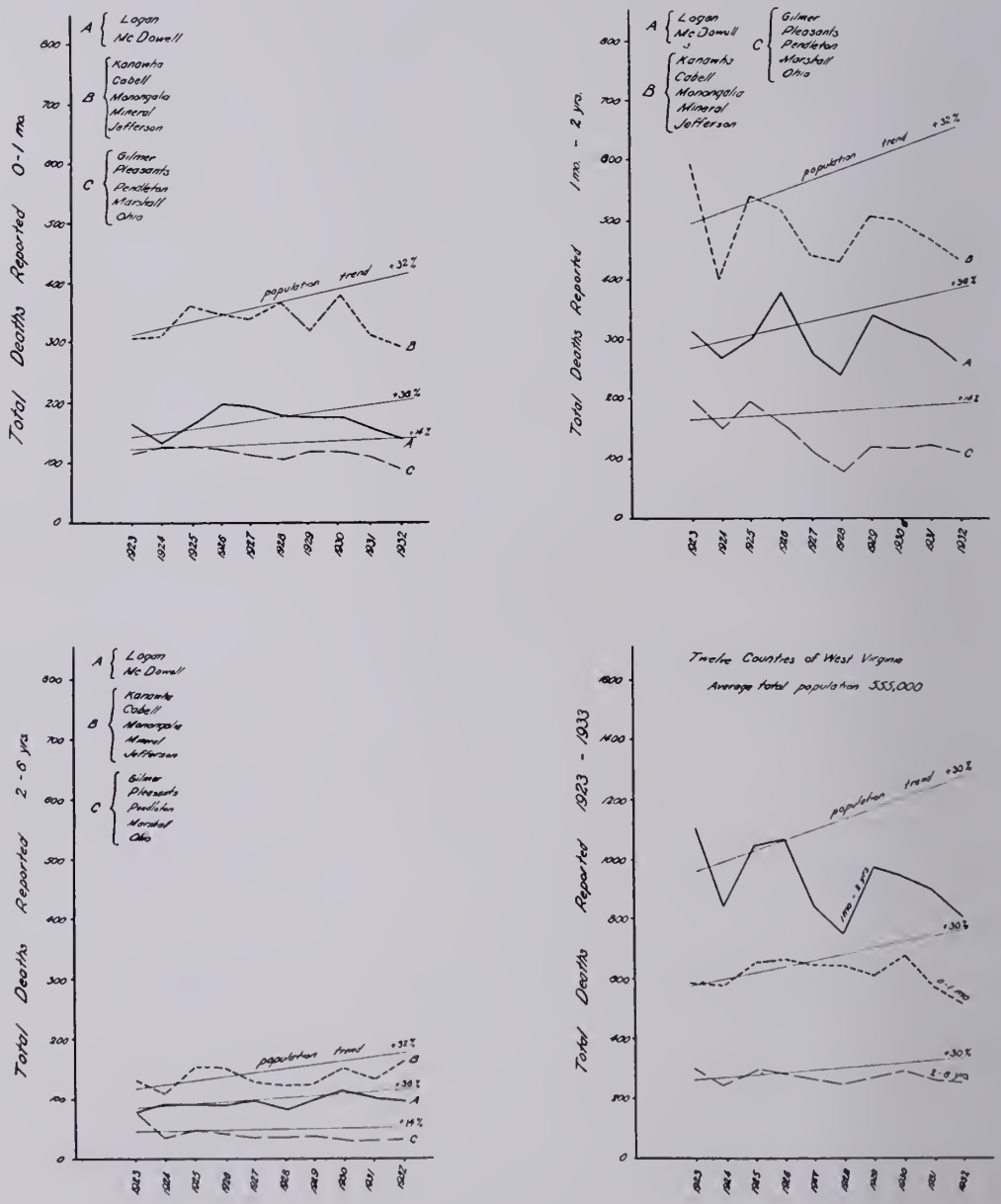

A Logan, Mc Dowell
B Kanawha, Cabell, Monongalia, Mineral, Jefferson
C Gilmer, Pleasants, Pendleton, Marshall, Ohio
Total Deaths Reported 0-1 mo.
Total Deaths Reported 1 mo. - 2 yrs.
Total Deaths Reported 2 - 6 yrs.
Total Deaths Reported 1923 - 1933
Twelve Counties of West Virginia
Average total population 555,000
population trend
+32%
+38%
+14%
+30%

FIG. 11

(c) *Runabout Period (2-6 yr.):* Curves for this period generally showed little seasonal excesses, while however, the more northerly and more urban Ohio county presented a curve with a major peak in March and a minor peak in September. Jefferson presented a major peak in January and a minor peak in August, both relatively low.

The highest average yearly runabout death rate for the decade was reported by Logan with a rate of 72 and McDowell was second with 69, (Fig. 12). Gilmer with 26 and Pleasants with 17 were low. It is inter-

esting to note that two of the coal mining counties reported rates from 200% to 250% higher than those reported by two of the sparsely settled rural counties, and yet that the majority of the counties reported rates of from only 10% to 60% higher than those for the sparsely settled rural counties. In the period 1923-1932 in the mountainous and inaccessible rural areas, deaths were actually referred to population, but did when referred to reported live births. In the period 1923-1932 and in the counties here studied, it would seem more reasonable to refer such deaths to population rather than to live births reported.

2. *Comparable Groups of Counties by Seasons:* When the county Groups A, B and C were studied as to seasonal characteristics

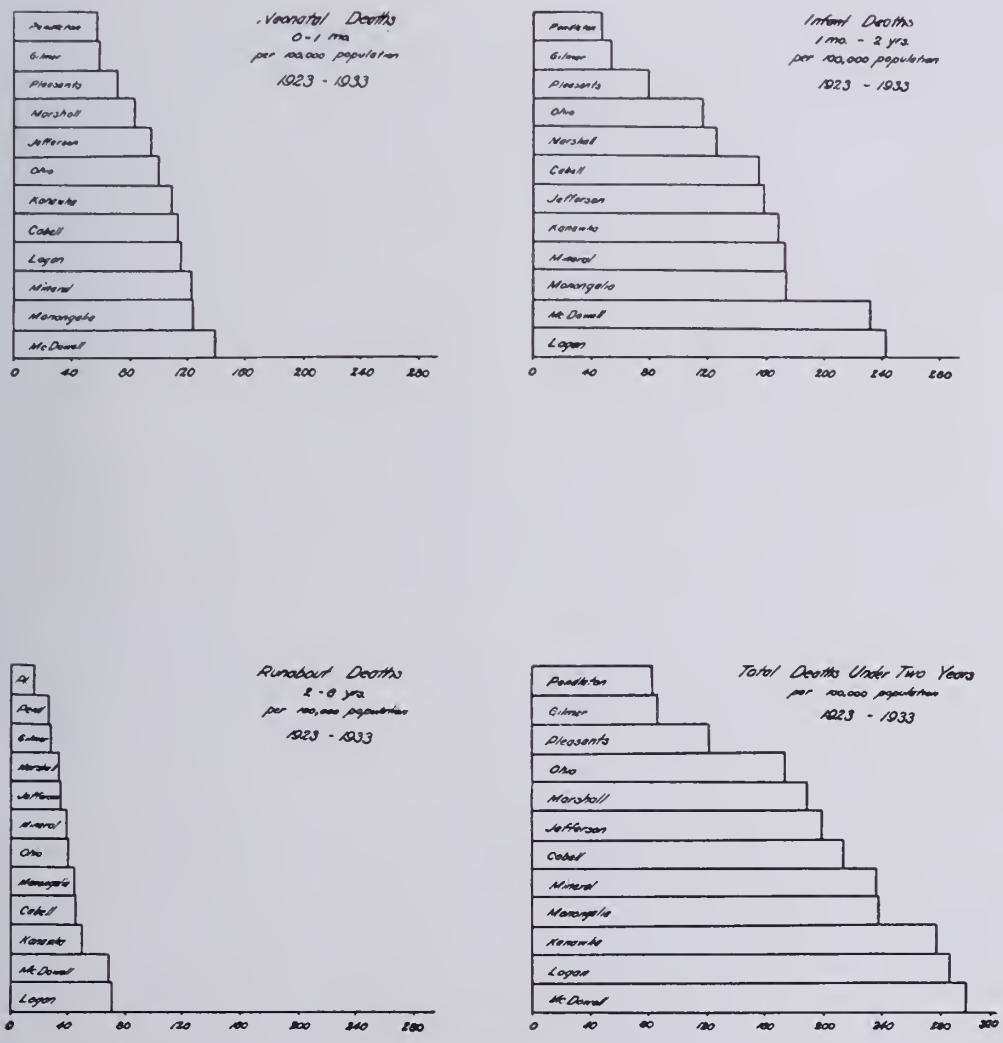


FIG. 12

reported with a greater degree of regularity than births. In two rural counties it has already been observed that a high infant death rate was due to relatively incomplete birth reporting in the presence of relatively good death reporting. These counties did not present unusually high infant death rates when (Fig. 7) remarkable comparison could be made.

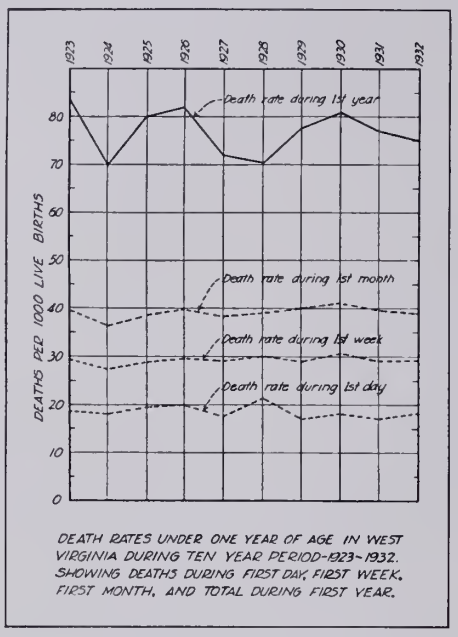
(a) *The neonatal rate* tended to be a little higher in the winter than the summer (Fig. 7).

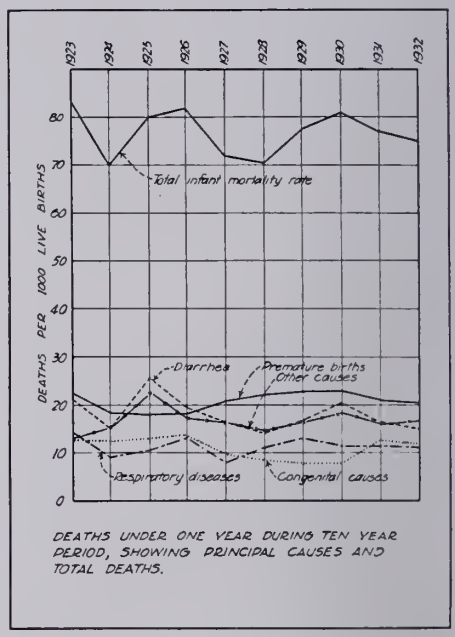
Group A (Logan and McDowell) presented the highest neonatal rate in the county

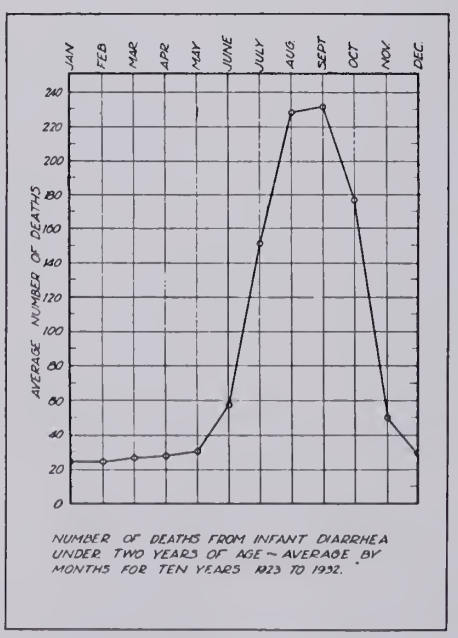
groups A, B and C. In group A the neonatal rate was lowest in August and rose gradually to a flattened peak in November, December and January and then tended generally to fall from March to August.

Group B (Cabell, Kanawha, Monongalia, Mineral, Jefferson) presented a neonatal rate generally below that for Group A and while there was a general winter time elevation, it was not as marked as in group A.

Group C presented generally the lowest neonatal rate with likewise the least seasonal variation.


1923 1924 1925 1926 1927 1928 1929 1930 1931 1932
DEATHS PER 1000 LIVE BIRTHS
Death rate during 1st year
Death rate during 1st month
Death rate during 1st week
Death rate during 1st day
DEATH RATES UNDER ONE YEAR OF AGE IN WEST VIRGINIA DURING TEN YEAR PERIOD-1923-1932. SHOWING DEATHS DURING FIRST DAY, FIRST WEEK, FIRST MONTH, AND TOTAL DURING FIRST YEAR.


1923 1924 1925 1926 1927 1928 1929 1930 1931 1932
DEATHS PER 1000 LIVE BIRTHS
Total infant mortality rate
Diarrhea
Premature births
Other causes
Respiratory diseases
Congenital causes
DEATHS UNDER ONE YEAR DURING TEN YEAR PERIOD, SHOWING PRINCIPAL CAUSES AND TOTAL DEATHS.


JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
AVERAGE NUMBER OF DEATHS
NUMBER OF DEATHS FROM INFANT DIARRHEA UNDER TWO YEARS OF AGE - AVERAGE BY MONTHS FOR TEN YEARS 1923 TO 1932.

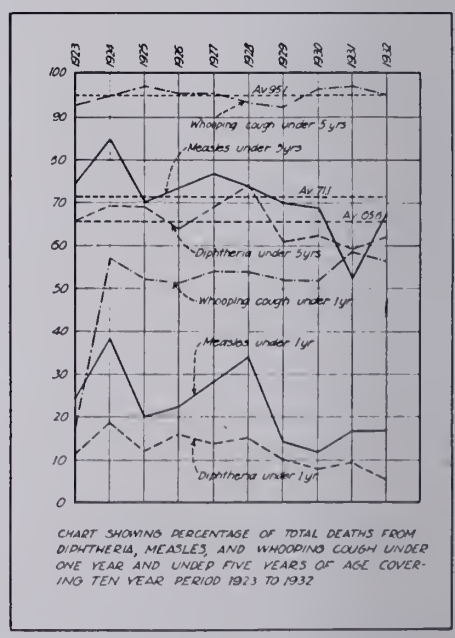

1923 1924 1925 1926 1927 1928 1929 1930 1931 1932
Av 95%
Whooping cough under 5 yrs
Measles under 5 yrs
Av 71%
Av 05%
Diphtheria under 5 yrs
Whooping cough under 1 yr
Measles under 1 yr
Diphtheria under 1 yr
CHART SHOWING PERCENTAGE OF TOTAL DEATHS FROM DIPHTHERIA, MEASLES, AND WHOOPING COUGH UNDER ONE YEAR AND UNDER FIVE YEARS OF AGE COVERING TEN YEAR PERIOD 1923 TO 1932

FIG. 13. Curves supplied by Department of Public Health, State of West Virginia

(b) *The infant rate* was characterized in each group by a major peak and a minor winter peak (Fig. 7).

Group A was generally the highest and while its winter peak was somewhat in excess of that of Groups B and C, the summer peak was considerably in excess of that of Group B and nearly three times that of Group C.

Group B showed two peaks, the major one occurring in the summer.

Group C showed a somewhat lower winter peak as compared to that of Groups B and C, while the summer peak was much lower.

In Group A, the summer excess was practically twice its own winter excess. In Group B the summer excess was nearly twice its own winter excess. In Group C the summer excess was but little more than the winter excess.

In all Groups the summer peak started in June and finished in November, corresponding directly with the time when flies are thickest and bacillary dysentery most prevalent.

(c) *The runabout rate* showed little seasonal variation for all three groups, but was actually higher throughout in group A and in this group there was a definite rise in the late summer and fall. Again Group B maintained an intermediate position and Group C presented the lowest rate.

That a community with a high infant mortality rate will also have a high death rate in the next four years of life has been again observed in this study (Fig. 4-6).

3. *Total Deaths, 12 Counties, Age 0-6, by Groups, by Years:* (a) Neonatal Period —There is an average winter time excess of approximately 30% to 50% more than that of the summer time curve.

(b) Infant Period—This is characterized by a moderate winter excess and an extremely high summer excess, beginning in June and maintained until November.

(c) Runabout Period—There is essentially no change in the runabout rate from season to season.

4. *An Urban Study by Seasons:* In Huntington the *neonatal* curve reached its major peak in the winter, (December and January). There was a slight rise in the summer and early fall, (August and September).

FIG. 14. Spot map showing distribution of dysentery cases by districts in Huntington, W. Va. Period 1921-1926.

The *infant rate* showed two peaks, the major one an excessively high summer rate (June to November) and a minor winter peak (January and February). The *runabout rate* showed only moderate, if any, excess in either winter or summer.

5. *Individual Counties—Yearly Trends:* (a) When the *neonatal deaths* (0-1 mo.) were charted by years for the decade 1923-1932 (Fig. 9-10), Kanawha tended to exceed the expected trend, not falling below it until in 1932. Ohio and Monongalia each showed a remarkable improvement when compared to the population trend. Cabell, McDowell, Logan, Marshall and Mineral each showed an appreciable decrease as compared to pop-

ulation trends. Jefferson showed a moderate decrease with a stationary population. There was little, if any, change in Gilmer, Pendleton and Pleasants counties, a small rise actually taking place from the low in 1927 to a high in 1932, just about equal to the high of 1925.

(b) *Infant deaths (1 mo.-2 yr.)* showed generally a tendency to a lowered trend over the 10 year period (Fig. 9-10). The years 1924, 1927 and 1928 generally were accompanied by a relatively low number of deaths, in this respect comparing favorably with population trends. In almost all counties a significant improvement was observed. Kanawha tended to follow the population trend. McDowell, Cabell, Ohio, Logan, Monongalia and Marshall showed remarkable improvement. There was little change in the other counties.

(c) *Runabout deaths* (2-6 yrs.) (Fig. 9-10) in Kanawha exceeded the estimated population trend throughout and in 1925 and 1932 were considerably in excess of the expected trend. McDowell, Ohio and Marshall showed significant improvement in a falling trend. Cabell tended to follow the estimated population trend but generally in a manner significantly below the expected trend. Logan tended to parallel the estimated population trend until a peak was reached in 1930, and then from a point which was then generally in excess of the estimated population trend, there was a gradual fall from a high in 1930 to a new low in 1932. Monongalia tended to follow the expected population trend usually in excess of it. Jefferson, Mineral, Gilmer, Pendleton and Pleasants showed little change.

6. *Comparable Groups of Counties—Yearly Trends:* When the county Groups A, B and C were studied as to yearly trends throughout the decade there were evidences of significantly lowered rates (Fig. 11).

(a) *Neonatal deaths* (Fig. 11) showed in Group A, a steady fall from an excess above the expected trend in 1926 to a low much below the expected trend in 1932. In group B after following the trend until 1928, there was a great fall in 1929, a rise in 1930 to the expected trend from which there was a rapid fall to 1931 and 1932, in which year the lowest rate occurred. This was a great improvement. Group C showed a gradual tendency toward a lower and better trend. It fell significantly below the expected trend in the last part of the decade reaching a low in 1932.

(b) *Infant deaths* showed a remarkable tendency to a lower and better trend in all three groups. This is significant and indicative of progress.

(c) *Runabout deaths* showed a moderate, but not striking, tendency to decline. In Group A after following the population trend somewhat on the favorable side for seven years, there began in 1930 a fall, which reached a somewhat more favorable low in 1932. Group B tended to follow the estimated population trend, but was generally below it. Group C showed a significant improvement, characterized by a steady decline.

7. *Total Deaths, 12 Counties, 0-6 yr., by Years:* In the neonatal period when total child deaths of the 12 counties were studied, there was observed only a moderate fall. With the population trend for the 12 counties upward 30%, neonatal deaths tended to follow this until in 1930 when the number began to fall. This was followed in 1931 and 1932 by a favorable trend in a significantly lowered number of neonatal deaths.

In the *infant period* there was a remarkable tendency to a lower and more favorable number of infant deaths, the years 1924, 1928 and 1932 being low and the years 1923, 1925 and 1929 being high. From 1928 to 1932 there was a steady fall in infant deaths. Throughout the decade, the number of infant deaths tends to be significantly below that to be expected from the increasing population trend. This indicates real improvement.

Runabout deaths occurred annually in about the same number with a slightly falling number of deaths showing a relatively favor-

able improvment as compared with the rising population trend of 30%.

8. *An Urban Area by Yearly Trends:* In Huntington, in spite of an increasing population, there was a steady fall in total *neonatal deaths* reported from a peak in 1925 with high numbers reported in 1922, 1925, 1926 and 1927 (Fig. 3). When neonatal deaths were compared to live births reported, the general trend was toward improvement (Fig. 8). The rate, when referred to live births, was particularly high in 1922 and only somewhat less in 1923. Births were not as properly or as promptly reported in 1922 as in subsequent years. At this time however, deaths were very completely reported. In 1922 and 1923 a high number of neonatal deaths, in combination with an actually incomplete reporting of births gave, for these years, an excessively high rate when neonatal deaths were compared to live births, making this method of comparison not an accurate index of the situation.

In the period of *infancy proper*, in spite of an increasing population, there was a remarkable improvement in the total deaths reported from peaks in 1923 and 1925 to a low in 1929. When compared to live births reported, the rate was almost as favorable in improvement as when total numbers of deaths reported were considered, but again the imperfect reporting of births in 1922 and 1923 makes this an unreliable index.

In the *runabout* period, there was observed a moderate tendency to improvement, whether one considered total deaths reported (Fig. 3), or whether deaths were compared to live births reported (Fig. 8). The years 1923 and 1925 were characterized by an unusual incidence of acute contagious diseases and of infections of the respiratory tract (broncho-pneumonia, influenza, measles and pertussis particularly). The summers of 1923 and 1925 were similarly characterized by an excessive morbidity and mortality from bacillary dysentery.

These observations are offered as indicating the probable explanation of the high rates for infants and runabouts observed in 1923 and for all age groups in 1925. The unusual prevalence of measles, pertussis and influenza in 1931 would seem to explain the increased rate for runabout deaths in that year.

It is interesting to note the slight change in still births and neonatal deaths reported from 1922 to 1932 (Fig. 8), and to compare them with live births reported. Live births and still births presented little monthly or seasonal variation from 1927 to 1932 (Fig. 8). Reporting live births was much better after 1923 than prior to that time, yet from 1925 in spite of a rising population trend, there occurred a steady decline in live births reported. The exact significance of this is not clear. It coincides exactly, however, with the curve expressing peak real estate and commercial activities and subsequent economic trends in Huntington. The fall in births reported parallels in general the trend for fall in employment for the Huntington area, since both were steadily downward from 1925. Similarly 1925 represented the last of the "boom" years for Huntington. Each year since, in steady progression, the trend has been a steadily downward curve from 1925 to the present, 1933. Even the years 1928 to 1930 were not accompanied by the increased employment and real estate and commercial activities experienced at the time in the other parts of the country. Changing industrial characteristics (coal and dependent merchandising) and unique economic factors in the city and its neighboring counties have certainly been significantly active. Every real estate subdivision, opened up in and around Huntington after January, 1925, has failed completely, while many of those opened in 1924 are still successful.

Summary and Comparison: There is a great difference in the *infant death rate* in the counties studied. In general, the rates follow those conditions known to affect infant mortality rates. In West Virginia, while two or three factors are particularly prominent here as elsewhere a "complex" of environmental

factors instead of a single causative one is observed.

1. *Neonatal rates (0-1 mo.)* are highest in these counties where conditions are least conducive to good health generally. They are highest in the coal mining sections where climatic conditions, socio-economic status and lack of social endeavor are unfavorable influences. They are lowest in the sparsely settled rural counties. The mining sections are relatively well supplied with physicians, while the sparsely settled rural sections have almost no physicians. The neonatal rate reaches its peak most generally in the winter and appears to be closely related to that particular extreme of climate or season which favors a prevalence of respiratory infections. The mining counties (McDowell, Monongalia, Mineral and Logan) have the highest rates and the sparsely settled agricultural counties (Pleasants, Gilmer and Pendleton) have the lowest neonatal death rates. Counties with cities may be influenced in this respect by having hospitals therein. In the counties studied this influence is negligible. There are some hospitals in the mining sections, but they do not draw from other counties and cause no unfavorable influences on the rates. There are no hospitals, few physicians and no medical societies in the four counties with the lowest rates. The socio-economic status of the individuals in the sparsely settled rural counties (Pendleton, Gilmer and Pleasants) is not better than that of the mining counties (Logan, McDowell, Monongalia and Mineral) nor is social endeavor in a better status. Communicable diseases are worse in the mining counties. Medical assistance (or intervention) is similarly more at hand in the mining counties. Both would appear as important contributing factors, almost of more importance than the lack of favorable socio-economic status and lack of social endeavor in the communities studied.

2. *Infant Death Rates (1 mo.-2 yr.)* are similarly highest in those counties where adverse environmental factors exist and in particular where they are accompanied by unfavorable sanitation, geographic endowment and socio-economic status. The worst rates are recorded in the mining sections (Logan, McDowell, Monongalia and Mineral) and the best rates in the sparsely settled agricultural or rural counties (Gilmer and Pendleton), and in the counties which are favorably endowed geographically, economically and socially (Ohio and Marshall).

The influence of respiratory diseases is seen in the winter months in all of the counties. This in general tends to be less than that of our more northerly neighbors. (Winters are more severe and more damp in Ohio county than in Cabell county and the reverse obtains for the summers. The growing season is three weeks later in Ohio county than in Cabell county.

The summer time peak is excessively high and is largely, if not almost entirely, due to intestinal infections (bacillary dysentery, infectious diarrhea, etc.). Here is found a most unenviable condition, and a condition not properly realized or appreciated by those without the borders of the state. Bacillary dysentery is a problem of grave importance in West Virginia.

In two counties (Ohio and Marshall) the summer time rate would seem to be comparable to that of other more northerly and more enlightened communities. Indeed they present geographically, industrially and socially quite a contrast to the mountainous, dysentery-ridden, socially backward, southern coal mining counties (Logan and McDowell), and to a somewhat lesser extent other northerly counties, Monongalia and Mineral). The agricultural, sparsely settled counties (Pendleton, Gilmer and Pleasants) present favorable rates both in summer and winter. One interested in geographic influences on people can find here opportunity for most interesting study.

3. *Runabout death rates* tend to be singularly constant throughout the year except in one county (Ohio), where there is a winter respiratory peak (February, March and April) and an autumnal peak (September,

October, November and December). Both are suggestive of respiratory deaths. The influence of the acute contagious diseases of childhood are probably of considerable significance here as in general they are most active at this age-group level, and tend to exert a relatively higher death toll in the more metropolitan and more northerly and colder climate of Ohio county. One county (Logan) presents a gradual rise from May to October, which is indicative of intestinal deaths. It is interesting that in this county (Logan) the lowest rate is observed in the winter. This coincides with experience and with the actual observation of morbidities and mortalities in this county. Two counties (Logan and McDowell) are high in runabout death rates throughout the year, while four (Marshall, Ohio, Gilmer and Pleasants) are low throughout the year. A high runabout death rate is found in those counties, which have high infant death rates. Years characterized by a high infant death rate (1 mo.-2 yr.) are generally accompanied by a high runabout rate.

During the decade, in most of the counties and in the one city some improvement was observed in *neonatal death rates*, but as a rule it was not marked. An improvement in *infant death rates (1 mo.-2 yr.)* was rather constantly observed. While the *runabout death rates* were lowered, the improvement was not as dramatic, or as favorable as in the case of the infant, one month to two years of age.

The urban area, Huntington, presented a high infant mortality rate. The neonatal rate was somewhat high, the infant rate excessively high and the runabout rate scarcely remarkable. It is here interesting to note that in 1930 Huntington had 16% more still births, 32% more neonatal deaths and 68% more deaths between one month and one year, than was the reported average for cities of 10,000 or more population in the United States Birth Registration Area for that year.

Bacillary dysentery and infectious diarrhea explain in the main, Huntington's high summer rate. Poor sanitation in proximity to dysentery ridden, rural areas explains this excessive rate. (Figure 14 and Table 1). Huntington's hospitals distort the rate very little. (Companion reports "Infant Mortality — a Sensitive Social Index of Social Welfare" and "Bacillary Dysentery as Observed in the Health Careers of Normal Children in Huntington, W. Va."*, describe in detail a study of the dysentery problem in Huntington and surrounding area.)

The State as a Whole: In the *winter* there occurs an excess of deaths due to respiratory diseases and while this is most apparent in the *infant period* (1 mo.-2 yr.) it occurs to a lesser extent in the *neonatal period*. It is not present in the *runabout period* to any considerable extent.

In the *summer* time there is a great excess of deaths in the *infant period* (1 mo.-2 yr.), but little in the *neonatal or runabout period*.

The distribution of diarrheal infant deaths within the state is admirably shown in the study prepared in the Department of Public Health (Fig. 2). This is in agreement with the findings of my study.

Special Considerations: The *neonatal rate* can be greatly improved by more adequate prenatal and intranatal care for the individual family. Laymen should appreciate and physicians provide more adequate obstetric supervision. Next to this factor, the freedom from communicable disease in the community and freedom from climatic extremes are important factors. To a somewhat less important extent improved living conditions, better familial and community habits, improved socio-economic status, and proper education will influence favorably the neonatal rate in West Virginia. Physicians in the mining sections could probably reduce the neonatal death rate by better obstetric care to their families. The Department of Public Health announced that in 1931, 89.5 of all deliveries reported in West Virginia were attended by physicians. There are not many physicians in the counties reporting least neonatal deaths. The physician in West Virginia does

contribute to the neo-natal death rate in West Virginia.

In the *period of infancy proper* (1 mo.-2 yr.) the summer excess is due mainly to bacillary dysentery and infectious diarrhea. It is actually excessive, and from this particular cause probably not to be exceeded by that of any other state in the Union. Such a condition can to a large extent be prevented by proper sanitation. Flies should be properly controlled, for in the presence of exposed infected sewage, they are the major factors in spreading the infection. They can be active in this respect, however, only when human excreta are improperly protected during the process of disposal (faulty sanitation). While milk and water may not always be as pure as possible, and while either may at times be a source of infection, this is not the usual manner of contagion in West Virginia. Proper health education and such public health activities as will provide within the state a universal desire for 100% proper sanitation can best solve this problem. Indeed the falling infant rate from 1923 to 1933 can in great measure be attributed to a somewhat improved state of sanitation and to a better appreciation of sanitary procedures, and only in part to better medical care. West Virginia's problem is unique because of its geographic endowment and industrial characteristics. Even in the coal mining sections the population is about 90% American born whites. Foreign racial strains and colored population

TABLE I

Districts Studied Represented on Map By Numerals	Children Studied Total	Children Who Had Dysentery	Percentage Who Had Dysentery	Social Group of family of Child Included in Study	Social Group Prevailing in the District Studied.
1. West End	34	16	47%	III, IV, V	II, III
2. Central	47	15	32%	II, III	II, III
3. East End	16	10	62%	IV, V	III
4. Southside	106	16	15%	I, II	I, II
5. Four Pole Park	19	10	52%	I	I
6. Pottery	9	5	56%	III, IV, V	III
7. C. and O. Shops	17	10	58%	IV, V	III
8. Walnut Hills	16	11	68%	IV, V	II, III
9. Highlawn	26	11	43%	III, IV, V	II, III
10. Guyandotte	10	7	70%	III, IV, V	II, III

300 children were observed and of these 111 or 37% had dysentery with blood, pus and mucus.

TABLE II

A. West End	20	12	60%	IV, V	V
B. Ohio Avenue, Johnson Lane	40	34	80.5%	V	V
C. Maple Avenue	8	5	62.5%	IV	V
D. A and B Street	8	6	75%	V	V
E. C. and O. Shops	10	6	60%	IV, V	V
F. Guyandotte	14	9	64.3%	V	V

100 children were observed and of these 72 or 72% had dysentery with blood, pus and mucus.

TABLE I—Cases of dysentery by districts in Huntington 1921-1926.

do not contribute to a significant degree to West Virginia's infant mortality rate.

The *runabout rate* shows little seasonal change. The evenness of this curve is probably explained by the tendency for the respiratory death rate in the winter time to rise in such manner as to match the increased summer time intestinal death rate, plus an important admixture of non-seasonal runabout deaths due to the communicable diseases of childhood. Many deaths in this period were undoubtedly due to the communicable diseases of childhood. The runabout problem can be advantageously attacked from this angle, as well as by improving sanitation.

Conclusion: West Virginia's infant mortality rate is due mainly to a high bacillary dysentery death rate in the period of one month to two years. A somewhat high neonatal rate contributes to a lesser extent. The runabout rate is really not remarkable. As only 7% of the population is colored, and as in 1931 less than 6% of the deaths reported under one year were colored, the excessive infant death rate cannot be due to a high proportion of colored population. The rate at all levels from 0-6 years is highest in the mountainous mining sections where unfavorable geographic and socio-economic factors prevail and in the adjoining counties. It is lowest in the sparsely settled rural counties. Economic, industrial, sociologic, geographic and atmospheric influences are also of great importance. The endemicity of bacillary dysentery and infectious diarrhea in the mining sections makes of them "community" foci of infection. Because of the endemicity of bacillary dysentery and infectious diarrhea in these sections, and because of a unique geographic and industrial endowment, West Virginia's diarrheal disease death rate is very high. Sociologic, socio-economic, industrial, racial and climatic factors are much less favorable to infant welfare in some states in which the infant death rate in no manner approaches that of West Virginia. This is particularly true in the southern states where the colored population is a factor. A solution of the bacillary dysentery problem in West Virginia requires a more than usual effort on the part of official and non-official health agencies and the state as a whole. It cannot be solved by the uncoördinated efforts of groups or individuals. Preventive measures or immunizations as applied to the individual, are ineffective in this problem. Public health efforts, communal health practices and the combined social endeavor of the respective communities should be intelligently coördinated and integrated to combat the disgraceful condition. The state of West Virginia should supply much financial and professional aid to these infested communities if dysentery is to be eradicated from the mountainous mining regions. These communities will not do it of their own free will and accord, yet in their indifference they remain a health menace to neighboring communities who may desire to maintain safe homes with proper sanitation. When the people of the infested counties realize the real aims of a good public health service (official, industrial and non-official), there can be a great improvement effected. Lack of this realization is at the moment a determining factor obstructing the way of progress. It is more than a community problem; it is a state problem. Rural sanitation should be pushed to the limit and urban sanitation brought up to a respectable status. The sympathy and activity of industry must be enlisted and the state as a whole must become sold on the advisability of providing 100% sanitation for all within its borders.

While its summer intestinal rate is higher, West Virginia's winter respiratory rate would seem to be relatively and actually less than that of the more northerly situated states.

It would not be fair to facts actually observed if mention were not made here to another very interesting observation. West Virginia's death rate, all ages included, is approximately the average for the country at large. This means that the excessively high infant mortality rate is offset by a relatively low death rate beyond infancy. This in turn

suggests that if the West Virginia child can survive the hazards of his first few years of life, he will have, as compared with children in many other states, a relatively more favorable chance of living thereafter. From a study of mortality rates at various age levels, West Virginia would seem to present to individuals who survive to school age and above, a relatively favorable environment in which to live. This may be considered a positive asset of the State whereas the high infant death rate until conditioning factors are removed, must remain a blot on the good name of the state. Certainly in West Virginia the infant mortality rate of the state as a whole and of individual counties in particular, is as sensitive an index of communal social endeavor as we possess.

SILICOSIS

By DANIEL N. BARBER, M. D.
Charleston, West Virginia

SILICOSIS or "miner's phthisis" has been known to occur among miners in certain districts for centuries, especially among metal miners in New Zealand, Australia, South Africa, Great Britain and in many of the states of our country. It is a form of pneumónoconiosis caused by the inhalation of large amounts of extremely fine silica (SiO^2) or silicate dust. It is usually slow in development, the rate depending upon the character of the dust (silicates being not as active as free silica), the amount breathed, length of exposure and physical condition of the man. The period of exposure before development of the disease in the gold mines of South Africa is from 2½ to 7½ years. It is characterized—anatomically by generalized fibrotic changes and the development of miliary nodulation in both lungs; clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis, and by characteristic x-ray findings. This process may progress for years after exposure has ceased. In the following industries it constitutes a definite occupational hazard,—namely, the mining of metals, coal, asbestos, etc., grinding and abrasive industries, glass-making, excavating, quarrying, stone cutting, sand pulverizing, sand blasting, furnace brick manufacture, making of vitreous enamel, slate manufacture, cement and pottery industries.

It is becoming an increasing cause of industrial court actions and compensation adjustments. At present the states have varying laws regarding silicosis and usually inadequate means for diagnosing it. Competent federal control would seem a better system, but if each state handed over all cases irrevocably to a properly constituted medical board the present chaos would be lessened.

After reading a good many pages by a considerable number of authors, I feel that we are at present in a rather vague state regarding silicosis. A few years ago it had all been worked out in a one-two-three manner—quite understandable, but recently the authorities have taken to disagreeing over many phases of the subject and seem to be actively engaged in further studies and researches with the view of rewriting the whole subject. Perhaps we will better understand the new, however, if we are more familiar with the work up to this date.

Cause: Race and habits have no significance. Most cases develop between 20 and 30 years, but the length and type of exposure is more important than age. A family history of tuberculosis or a personal history of a respiratory infection or syphilis is predisposing. Careful studies seem to indicate that anthracosis really predisposes to silicosis rather than hinders its development as previously

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thought. There is insufficient evidence that clay in the dust has any definite preventative influences.

Silicosis is due to breathing very fine rock dust containing silica. Dust particles must be 10 microns or less in diameter to cause the disease. This dust is measured in the air by the sugar tube method, the konimeter, and the impinger. Since the particles that are dangerous are chiefly ultra-microscopic in size, the weight methods are the more accurate in determining the amount present.

Pathology: Silica or silicate dust is somewhat soluble in water and weakly alkaline liquids similar to body fluids. Silica may do harm mechanically due to its needle-like particles, but due to its partial solubility, it probably injures the lung tissue by its poisonous action.

Unlike coal dust, the particles of silica dust remain within the so-called dust cells of the lung. These cells become clumped together to form masses of cells called false tubercles. These are first found near the surface of the lungs. At first separate, these fuse together and assist in uniformly thickening the pleura. When these dust cells reach the lymphatics, they are not all carried off but accumulate and block the passages resulting in the formation of fibrous or scar tissue.

There are five stages in the pathology: 1. The development of a dry bronchiolitis characterized by an accumulation of dust-filled phagocytes in or in relation to the terminal bronchioles with possibly some desquamation of their epithelium. 2. The accumulation of dust-containing phagocytes about and in the intra-pulmonary lymphoid tissue and their transportation through the lymphatics into the tracheo-bronchial lymph nodes. 3. The gradual development of fibrous tissue within such accumulations of phagocytes and the formation of characteristic nodules of hyaline fibrous tissue. 4. Degenerative changes in these foci. 5. The hyaline nodules increase in size by extension at their periphery. Coalescence of adjacent nodules takes place and brings about involvement of further areas of the lung.

Normal lung contains 1.13 mg. of silicon dioxide per gram of dried tissue. This is always increased in silicosis. A chemical examination of the lungs should be made in every case coming to autopsy, in which there is a history of a dusty occupation.

Diagnosis: A careful history of occupation, present and past, especially as to details of the type of work and dust exposure is necessary. Subjective symptoms are—dyspnea, pain in chest of a fleeting and vague nature and not disabling, cough which is usually not productive, occasional slight hemoptysis, night sweats, loss of strength, and gastro-intestinal symptoms suggestive of indigestion. The percentage of cases in which each of these symptoms appear is very variable.

Physical Examination: The men usually appear to be in robust health, possibly due in part to the muscular development resulting from heavy manual labor. Weight tends to increase slightly until late in the disease. Blood pressure tends to make a slight rise. A persistent marked drop in a case of silicosis indicates a probable tuberculous infection. The antero-posterior diameter of the chest tends to increase with occasional slight retractions of sternum or costal margins. In the advanced stages of silicosis, uncomplicated with tuberculosis, the chest usually appears large, compact and well built but relatively immobile. The cardinal physical finding is diminished chest expansion. Emphasis should not be put upon the chest expansion found, but rather on the importance of the comparison with the man's chest expansion found at an earlier examination. Râles are heard more often in the early cases and chiefly in the bases. There is a characteristic alteration of the inspiratory murmur from the normal vesicular character to a higher pitched or harshened, thinned and somewhat shortened type. The expiratory murmur is prolonged but remains fainter than the inspiratory.

The heart shows no consistent changes. The enlargement that often develops is seen best by a lateral x-ray.

X-ray Findings: It is generally accepted that x-ray offers the best and most reliable indication of the lung changes that occur in silicosis, particularly in the early stage. The value of this method of diagnosis depends largely upon the skill of the technician and the experience of the reader. The pictures should be made slightly "harder" than chest pictures for tuberculosis in order to block out the general haziness showing in many of them, which is probably the result of general inflammatory conditions such as bronchitis or influenza. Due to shortness of breath a rapid technique should be used.

In the definitely negative chest the hilum shadows are not more than 7½ cm. in width from the midline and do not cover more than two interspaces and one rib at a target distance of 48 inches. The hilum shadows occasionally show one or more fairly large calcifications.

In a differential x-ray diagnosis the following diseases must be considered, as at various stages they give appearances similar to silicosis, namely—tuberculosis, passive congestion due to cardiac decompensation or coronary thrombosis, bilateral bronchiectasis, asthma, infiltrating malignant metastases, polycythemia or erythemia, mycotic infections and interstitial pneumonitis.

Stages of Silicosis: Silicosis is usually divided in three stages for diagnosis, prognosis and classifications. These will now be outlined and the x-ray findings given with each stage.

First Stage (corresponds to anteprimary stage of South Africa): The symptoms of uncomplicated first stage silicosis are few and often indefinite. The man may appear to be quite well and his working capacity unimpaired. Slight shortness of breath on exertion and some unproductive cough, often with recurrent colds are the most usual symptoms. The man may have a little less ability to expand his chest than formerly and the elasticity of the chest may be slightly impaired. The earliest specific indication of the presence of silicosis is the radiographic appearance.

The hilum shadows are increased in density and larger than normal. In many instances large calcified spots are noted in or around the hilum shadows. Collections of such calcifications may involve the entire hilum. Following enlargement of the hilum shadows, the entire bronchial tree increases in density and can often be traced to the outer margins of the lungs. Along the thickened bronchial tree near the hilums are small shot-like spots described as "beads" or bronchial "buds". When the spots become noticeable throughout the lower section of the lungs, the case is classified as the beginning of first stage silicosis. These spots are fairly dense, about one-eighth of an inch in diameter, discrete, and with irregular fuzzy outline. The diaphragm and heart show little change.

Second Stage (corresponds to primary stage in South Africa):

Definite shortening of breath on exertion is usually found and pains in the chest are a frequent complaint. A dry morning cough is often present, sometimes with vomiting, and recurrent colds are more frequent. Even then the man's appearance may be healthy, but he is dyspneic on exertion, he cannot work as well as formerly and his chest expansion is noticeably decreased, the movement being sluggish and diminished in elasticity.

The characteristic radiographic appearance is a generalized medium-sized mottling throughout both lung fields. The hilum shadows are large and dense but generally do not show any more definitely than in first stage silicosis. The "beads" or "buds" along the bronchial tree become larger, more numerous, denser, clearer in outline. The diaphragm is often humped and numerous bands of adhesions are noted at the bases. Heart shadows are usually normal.

Third Stage (corresponds to secondary stage of South Africa): In the third stage the shortness of breath is marked and dis-

tressing, even on slight exertion. The cough is more frequent. The expectoration in most cases is slight. The individual's capacity for work becomes seriously and permanently impaired. His chest expansion is greatly decreased even with forced inspiration. He may lose flesh. His pulse rate may be increased and his heart may become dilated.

In the x-ray the spots described under second stage silicosis tend to coalesce, forming large areas of marked density. In some of the cases very large areas of marked density are observed. These are usually in the middle section of the lungs and are similar to tuberculous consolidations. These areas, however, are usually bilateral and blend so perfectly with the snow-storm appearance as to suggest silicotic areas, which the physical examination and laboratory findings tend to confirm.

The x-ray appearance of silicosis complicated with tuberculosis: Detection of the beginning of tuberculous infections is often very difficult because of the extensive silicotic changes. The hilum shadows are more likely to show calcified spots. Areas of marked density are usually observed at one or both apices. These areas are not so dense or opaque as the fibrotic areas of silicosis and appear cottony. They are usually unilateral in the beginning.

Treatment: Change of occupation to an open air work is necessary. Exercise is usually not restricted in uncomplicated cases. A high, dry, warm climate is best.

Prevention: The elimination of silicosis among miners depends on preventing the formation of dust by wet mining methods, such as wet drilling, wetting sides, roof and bottom and muck or rock piles; the use of sprays and water blasts to lay the dust after blasting; good mechanical ventilation to replace dusty air with clean air, and physical examination of all miners before employment and periodically thereafter.

Prognosis: The prognosis in early silicosis is good if the patient can be removed from his dusty occupation and can be placed in the open, but with advance of the disease the prognosis becomes less favorable, principally on account of the liability of tuberculous infection. The chance for recovery in the third stage is small, although open air treatment is beneficial in some cases. Recovery does not mean restoration of the tissue in the lungs to normal but subsidence of the inflammatory changes and symptoms. Susceptibility to infection is increased in all stages of silicosis, but infection is more frequent in the third stage.

In conclusion, it should be emphasized that while the cardinal symptom of silicosis is shortness of breath, the cardinal sign decreased chest expansion and the earliest specific indication—the characteristic x-ray appearance, the diagnosis should be made only by a correlation of all facts: symptoms, signs, occupational history and laboratory and röentgenological observations.

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TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

Attention is being called to the co-existence of tuberculosis and diabetes. Is the presence of these diseases in the same individual merely coincidental or do they supplement each other in an unholy alliance to the more certain detriment of the victim? Questions of predisposition, prognosis and treatment are influenced by the answer. In a series of four articles based on an analysis of the literature and on recently ascertained facts, Howard F. Root discusses "The Association of Diabetes and Tuberculosis."

Diabetes and Tuberculosis: Diabetes mellitus seems to predisopse to the development of pulmonary tuberculosis. In studying 245 cases of associated diabetes and pulmonary tuberculosis the following facts appeared outstanding.

(a) The development of pulmonary tuberculosis in juvenile diabetics occurred more than ten times as frequently as among non-diabetic grade and high school children.

(b) Pulmonary tuberculosis developed in 8 per cent of diabetic patients within three years of recovery from coma.

(c) The incidence of pulmonary tuberculosis in adult diabetics is increasing despite the general decrease of tuberculosis mortality.

Incidence: (1) Active tuberculosis was found in diabetics (at autopsy) between two and three times as frequently as expected.

(2) Tuberculous infection in diabetic children is more common than in school children as a whole.

(3) Adult type pulmonary tuberculosis in children who develop diabetes before the age of 15, is more than thirteen times as frequent as among grade school children in general.

(4) In adolescents who developed diabetes between the ages of 15 and 20, pulmonary tuberculosis was found sixteen times as frequently as among high school students in general.

(5) Among diabetic adults active tuberculosis was found in 2.8 per cent.

(6) Deaths from tuberculosis among diabetics increased from 4.7 per cent before June, 1919 to 6.7 per cent in the period between August, 1922 and November, 1931.

(7) Familial contact, race, occupation, housing, poverty, and alcoholism do not appear to explain the greatly increased incidence of pulmonary tuberculosis in diabetics.

Pathology: Study of 126 autopsies upon tuberculous diabetics leads to these summarized conclusions:

(1) The tuberculous diabetic need not proceed rapidly to death from tuberculosis. At autopsy healed and healing lesions are frequent.

(2) Primary foci occur in childhood and areas of calcification in the parenchyma were observed in 76 out of 87 chest films of adult tuberculous cases.

(3) Miliary, meningitic and acute generalized tuberculosis are rare.

(4) Caseation and cavitation involve chiefly the upper lobes although the first lesions of reinfection were sometimes observed at or below the level of the hilum.

(5) Acute pneumonic or miliary processes were found usually as terminal events in a chronic pulmonary process.

(6) The presence of large caseating lymphatic glands together with pulmonary tuberculosis in five cases resembled the tuberculosis of Negroes.

(7) Because of primary infection early in life, diabetics are highly sensitized. Their resistance seems to have been normal until diabetes developed.

(8) Etiologic factors introduced by diabetes are concerned chiefly with changes in body chemistry which may favor multiplication of bacilli or development of variants. These include disordered protein and fat metabolism with increased amino acid nitrogen and glycerol in the tissues, induced especially in periods of acidosis.

(9) Contact with open cases is known in a sufficient number to make evaluation of other factors difficult.

Clinical Facts: The clinical data which were obtained from 245 tuberculous diabetics include the following:

(1) Only 10 were discovered with a minimal pulmonary lesion. Tardy diagnosis characterizes diabetic tuberculosis.

(2) Onset of tuberculosis was subsequent to onset of diabetes in 85 per cent of the cases.

(3) Although both sexes were equally infected early in life, male diabetics are almost twice as likely to break down in adult life with pulmonary tuberculosis as are females.

(4) The average loss of weight for 219 cases was 42 pounds and in 24 cases the average was 88 pounds.

(5) Marked gain in carbohydrate tolerance during advancing tuberculosis occurred in a few cases.

(6) Comparison of onset-symptoms and physical signs with those in non-diabetics shows no special insidiousness in the development of tuberculosis in the diabetic.

(7) No special diabetic type of lesions was observed (by röentgenograms) although exudative, pneumonic types with cavitation frequently developed in patients with evidences of previous infection.

(8) The incidence of pulmonary tuberculosis increases with the duration of the diabetes. Among 19 males with diabetes over 20 years, 3 or 16 per cent had active pulmonary tuberculosis.

(9) In childhood, skin tests with tuberculin were positive in 46 per cent of cases both in Boston Tuberculosis Abstracts—Galley 2 .....58. and in Vienna. Among 201 diabetic children calcified tracheobronchial glands were found in 42 per cent in the first decade and 74 per cent in the second decade of life.

(10) Of seventeen cases of adult type tuberculosis in juvenile diabetics, eleven are still living with diabetes of nine years' duration and tuberculosis of at least three years' duration.

(11) In 49 cases, tuberculosis developed after the age of 60 years. Processes apparently latent for years developed activity after onset of diabetes.

Prognosis: The prognosis for the diabetic patient with tuberculosis was considered practically hopeless before the use of insulin. All statements in the past have been based upon tuberculosis discovered in an advanced state. At present insulin and modern dietary treatment distinctly improve the prognosis in preventing death from coma and in maintaining better nutrition. Collapse therapy in properly selected cases is an additional favorable factor.

Prevention and Treatment: (1) In order to promote good nutrition and resistance to tuberculosis, the use of insulin should be begun immediately in all youthful diabetics.

(2) Considering age, weight and diet the tuberculous diabetic required about the same insulin dose as the non-tuberculous case. The average daily dose in 18 cases of tuberculosis and diabetes at the Deaconess Hospital between the ages of 15 and 29 years was 39 units.

(3) Serious hypoglycemia must be guarded against by the cautious use of insulin in severely ill, or emaciated tuberculous diabetes.

(4) Sixty-nine fatal cases of tuberculosis and diabetes treated with insulin lived 8.6 years, whereas, 90 fatal cases treated without insulin lived only 5.4 years after onset of diabetes.

(5) The last ten cases of active tuberculosis and diabetes with fever at the Deaconess Hospital received an average diet of carbohydrate 157 grams, protein 83 grams, fat 116 grams, calories 2,004 and insulin 42 units.

(6) Coma cases should be followed up yearly by x-ray examination for the detection of developing tuberculosis.

(7) Eighteen cases alive in 1933 have survived active pulmonary tuberculosis for an average of 9.0 years.

(8) The recognition of pulmonary tuberculosis in a truly incipient stage in a diabetic is almost unknown in the literature. Ten cases occur among 245 in this series.

(9) Prognosis for the tuberculous diabetic depends upon earlier diagnosis of the tuberculosis by more frequent physical and x-ray examination.

(10) Lack of control of the diabetes increases the chance of developing tuberculosis, as indicated by the frequent development of tuberculosis in cases who have had coma.

(11) Preventive measures include early aggressive diabetic treatment, and good hygiene.

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PRESIDENT'S PAGE

There has been, and still is, considerable misunderstanding over the state in regard to the purpose and use of the medical defense fund of the West Virginia State Medical Association. Many doctors apparently feel that the defense fund is of little value because it does not provide adequate protection in malpractice suits.

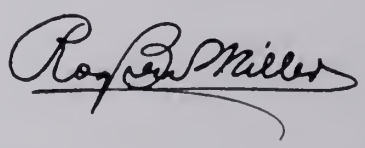
First we wish to point out that the defense fund is maintained and used primarily for group protection and not for individual protection. Any doctor who depends upon our medical defense fund for individual protection is making a sad mistake. Commercial liability insurance should be carried by every member of the Association whose practice is subject to action for malpractice. Our medical defense fund is a different proposition entirely.

Prior to 1930 our defense fund did attempt to furnish a kind of minimum protection in malpractice cases. The fund allowed a maximum of $300 for attorney's fees but nothing for protection against possible judgments. A small allowance was also provided for witness fees. Under this arrangement, the annual income of the fund was approximately $1,000 and the annual outgo was about $1,500. This old plan had a tendency to cajole the doctors away from commercial liability insurance, it provided protection that was vastly inadequate, and it was financially unsound.

At White Sulphur Springs in 1930 the House of Delegates revised and revamped the medical defense by-laws so that the fund could be used for group rather than individual protection. As the fund is now operated it provides a reasonable fee for expert witnesses within the profession, but it makes practically no provision for attorney's fees or for any other kind of individual protection. As a matter of fact the name, "medical defense fund," is somewhat of a misnomer.

In spite of the inadequate protection offered by the fund, it is nevertheless one of the most valuable allies to organized medicine with this state. The defense fund, within the past few years, has been used in many cases involving the entire profession. The defense fund, with the Cabell County Medical Society, financed the Sloan-Mitchell case; it financed the Valley Camp Coal Company case in Charleston and the Mason county case involving the rights of the state medical practice act. The defense fund has made it possible, through the special fund, for the Association to attack important legal problems for all the doctors, rather than fight individual battles in a poor way.

In my opinion, there are still two changes that should be made in our by-laws governing the defense fund. First I think the name should be changed to the "legal" fund. Second, I believe that participation in the fund should be a regular part of the state dues rather than an optional contribution.



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DIVIDED INTERESTS

On all sides we hear the clamor for forms of health and hospital insurance, for socialized medicine, free clinics, free hospitalization for veterans, state medicine and the vast array of panaceas for the cost of medical care. With revolutionary changes being made almost daily in various phases of governmental activity, it behooves the medical profession to stand together as a solid unit if the profession is to successfully defend the traditions that have been handed down to us over a period of several hundred years.

The medical profession cannot stand together as a solid unit so long as its individual members squander their allegiance in hybrid medical organizations. There is but one parent to organized medicine in the United States and that is the American Medical Association. The remainder are aunts and stepsisters and second cousins that play around the parental doorstep and clamor for attention. They may be all right to play with on a holiday afternoon but they will be of little service when the wolf comes galloping through the front gate.

The shotgun of organized medicine is carried by the American Medical Association. The doctor who scatters his devotion amongst the in-laws is simply making off with another round of ammunition. This dissipation of allegiance that is so prevalent in America today is more responsible than anything else for the inroads that have already been made on our traditional standards of medical practice.

Fellowship in the American College of Physicians or Surgeons or Pediatricians or Proctologists or whatnot is a nice honor and one that gives a pleasant distinction to its owner. The Vice-Presidency of the American Society for the Placement of Refugee Foreign Physicians is a comforting flounce on the petticoat of achievement. It is a gentle pastime to read the tirades of Medical Economics, tucked in here and there between the halitosis and "B. O." advertisements. It is interesting and educational to attend the extravaganzas of the Inter-State Postgraduate Medical Assembly of North America if you can pay the modest registration fee. But these distinctions, whether personal or educational, will avail nothing when the line of battle is drawn up. Then we will find the American Medical Association ready for the march, and the in-law organizations all pointing in different directions and telling the A. M. A. which way to go.

There is a recognized place in our modern medical scheme for many of the specialized organizations that are now in existence. Many of them unquestionably play a part in the advancement of medical science. But they should be considered only as *hors d'œuvres* on the dinner table of organized medicine. Choosing between the two honors, this writer would rather be a member of his county medical society than President of all the offshoot medical organizations in America, Haiti and Guam.

MEDICAL RELIEF CASES

The Medical Relief Committee of the West Virginia State Medical Association has lodged a mild complaint against some of the Association members who are appealing their occasional disputes direct to the West Virginia Relief Administration. Several of these appeal cases have recently been handled by the Committee.

Under the present set-up, a doctor who renders emergency medical aid to a person on the relief roll presents his bill to the relief administrator of his county. If there is any question relative to paying the bill, the matter is referred to the county medical society medical relief committee. If the county relief committee is unable to adjust matters to the satisfaction of the doctor, he can appeal to the Medical Relief Committee of the State Association.

The above arrangement has worked out most satisfactorily in all cases that have been appealed to date. Apparently, however, many doctors are not familiar with this procedure. Instead of appealing their problems to the Association Committee, a number of doctors are carrying their disputes direct to the State Relief Administration.

A great deal of time can be saved by the doctors if they appeal to the Association's committee, because all appeals are eventually referred to the committee even though they are sent direct to the Relief Administration. One of the chief duties of the Association committee is to iron out the difficulties that cannot be settled in the various counties. The Relief Administration has depended practically 100 percent on the Association for this service and the findings and recommendations of the Association Committee have, thus far, been followed to the letter.

The Association Committee on Medical Relief has one of the most difficult jobs within our organization. It is handling a new problem with many ramifications, and is serving as the buffer between the medical profession and the West Virginia Relief Administration. The Committee has a written agreement with the Relief Administration which both parties must adhere to. This agreement has been published in the JOURNAL, its essential features have been mailed to every member of the Association, and any doctor who works under the terms of this agreement should welcome the opportunity of appealing to the Committee if he is not able to get satisfaction in his own county.

Occasionally appeals are sent in direct to the Relief Administration that threaten withdrawal of support, reprisals on the part of organized medicine, civil suits and other dire consequences. Individual threats of this sort have a tendency to hamper and embarrass the Association Committee on Medical Relief. If strong language is to be used, it should be delayed until the Committee has proven itself unable to adjust matters to the satisfaction of the strong language user.

Up to the present time the Committee has vigorously defended the rights of the individual practitioner of medicine, it has kept on the most friendly terms with the State Relief Administration and it maintained control, as per agreement, of the emergency medical aid program. The members of the Committee have asked that the doctors bring their grievances to the Committee before taking them up with outsiders.

RELIEF POSITIONS OPEN

During the past three months the Association office at Charleston has been called upon to fill many vacancies, both permanent and temporary, in Southern West Virginia. Almost every week some doctor in the industrial area telephones in for an assistant or for a temporary relief doctor. In the past the supply of available physicians has been much larger than the demand. The reverse is now true. West Virginia doctors who are interested in securing a new location or in doing occasional relief work are asked to get in touch with the Executive Secretary.

30,000 PHYSICAL EXAMINATIONS

During the coming month approximately 30,000 men and women, now employed under the State Relief Administration, will receive physical examinations from the hands of the medical profession. The JOURNAL is pleased to report that the medical relief committees of each county medical society in the state will be asked to work out a plan for making these examinations.

The question of properly conducting the examinations as expeditiously as possible was first taken up with the Medical Relief Committee of the West Virginia State Medical Association. Realizing that different conditions prevail in different counties, the Association Committee felt that a blanket program for the entire state would be inadvisable. The Association Committee recommended, therefore, that this matter be taken up independently with each county society relief committee. This recommendation is now being carried out.

Three general suggestions were made by the Association Committee in an endeavor to hold the examination work within the ranks of the private practitioners of medicine. These suggestions are as follows:

First, that the examinations be made on an individual fee basis by the doctors who care to participate.

Second, that the interested doctors give up occasional half-days and conduct the examinations at designated places at a fixed rate per half-day.

Third, that one or more doctors be selected by the Committee or county society and employed full-time at a full-time salary.

The third suggestion, of course, should prevail only in the event the first two are not applicable to local conditions.

The above suggestions are in no way binding upon any county society or any county medical relief committee. They were made simply to give the local units a basis on which to work.

WHEELING CLINIC ANNIVERSARY

The tenth anniversary of the foundation of the Wheeling Clinic, Wheeling, West Virginia, will be observed with fitting ceremonies on July 16. The morning of July 16 will be given over to golf and to clinics at the Wheeling hospitals. A scientific program will be presented during the afternoon and the anniversary celebration will close with a banquet at the Fort Henry Club, Wheeling, that evening.

Speakers on the afternoon program will include Dr. C. C. Sturgis of the University of Michigan Medical School, Ann Arbor; Dr. Ralph Pemberton of Philadelphia; and Dr. George Pack of the Memorial Hospital, New York City. The afternoon session will be held at the Scottish Rite Cathedral. Dr. Hugh Cabot of the Mayo Clinic will be the banquet speaker on the subject, "Modern Trends in Medical Practice."

Invitations have been sent out to neighboring societies and to the West Virginia Fellows of the American College of Physicians and the American College of Surgeons.

LOST AND FOUND

At the conclusion of the scientific program at the Huntington meeting on May 15, two stereoptican slides were found in the ballroom of the Hotel Pritchard. One appears to be labelled "subdural hematoma" and the other "Kerhahan—duodenal ulcer." The owner or owners of these slides may secure same by writing the Executive Secretary at Charleston.

CHILDREN'S QUARRELS

Granting the inevitability and even the desirability of some family quarreling, every thoughtful parent will want to minimize the causes as much as possible. These causes are chiefly physical discomfort such as fatigue or hunger, the struggle between individual and communal rights, and the disparity in age groups.

Strong as the temptation is to interfere, it is wiser to let most children's quarrels adjust themselves. Nevertheless, resourceful and thoughtful parents can find ways to mitigate many of the causes of quarreling. A quiet place in which to lie down is an excellent safety valve. A plan of having the children and parents discuss any special problems in family adjustment will work wonders, Eleanor Hubbard Garst suggests in an article, "My Children Quarrel So!" in the June *Hygeia*.

"It is most comforting of all to remember that most quarrels are evidences of family growth. It is the mother's nervous irritation that makes them a festering sore point. When quarrels do arise, let her take them casually and humorously, and they will evaporate," Mrs. Garst says.

COUNTY SOCIETY NEWS

RALEIGH COUNTY

The regular meeting of the Raleigh County Medical Society was held at the Pinecrest Sanitarium, Beckley, W. Va., Thursday, June 7. There was a general inspection of the institution between the hours of 5 to 7 p. m. and at 7 p. m. a delightful dinner was served to those present. Dr. Russell B. Bailey, Wheeling, W. Va. gave a lecture and lantern slide demonstration of cases on "Interesting Lesions of the Lungs and Mediastinum" and Dr. E. Bennette Henson of Charleston gave a lecture on the "Treatment of the Tuberculosis Bone Lesion." Both lectures were thoroughly enjoyed and widely discussed by those in attendance. Several doctors from neighboring counties attended the dinner and meeting.

L. M. HALLORAN, *Secretary*.

MERCER COUNTY

A joint meeting of the Mercer County Medical Society with the McDowell Medical Society was held on June 21, 1934 at 8:15 p. m. in the Directors' Room of the Municipal Building, Bluefield, W. Va. There was a very good attendance from both the Mercer and McDowell societies.

Miss Nellie Nash, Director of Relief Nursing of this district, gave a talk explaining the plan and the aims of this organiztaion and asked for coöperation of the doctors.

We then had the following program by the McDowell County Medical Society: "Pre-sacral Sympathectomy for Bladder Conditions" by Dr. O. C. Fulcher, Welch, W. Va.; "Crossed Eyes" by Dr. H. T. Schiefelbein, Welch, W. Va.

These papers were especially well prepared and ably presented and freely discussed. A Dutch luncheon was then served.

R. R. STUART, *Secretary*.

CABELL COUNTY

Dr. Richard B. Easley of Huntington was the scientific essayist at the June 14 meeting of the Cabell County Medical Society which was held at the Hotel Pritchard. His subject was "Cysterna Magna Puncture; Its Technique and Use." This was a most interesting presentation for the members.

EDWIN MATTHEWS, *Secretary*.

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel on the evening of June 19 with 57 members in attendance. The scientific program consisted of a symposium on heart disease which was presented by Dr. G. H. Barksdale and Dr. P. A. Tuckwiller. Discussion was opened by Dr. M. I. Mendeloff and Dr. A. W. Milhoan, Nitro.

Mr. J. Blackburn Watts, Kanawha County Prosecuting Attorney, was a guest speaker at this meeting and talked on the need of coöperation between the medical profession and the law-enforcing officers, particularly in regard to securing deathbed statements in murder cases.

ANDREW E. AMICK, *Secretary*.

FAYETTE COUNTY

Dr. George M. Lyon, Huntington, and Dr. George Fordham, Powellton, were the essayists at the May 8 meeting of the Society held at Oak Hill. Dr. Lyon spoke on "The Special Problem of Child Hygiene in West Virginia." Dr. Fordham spoke on "Child Hygiene in a Coal Mining Community." Both papers drew a very general discussion from the large number of doctors who were in attendance.

A fine meeting of the Fayette County Medical Society was held at the Hotel Hill, Oak Hill, on the evening of June 12 with an excellent attendance. After disposing of routine business matters, two very interesting skin cases were presented to the society, following which the scientific program was rendered.

Dr. M. L. Bonar, Charleston dermatologist, opened the scientific program with a paper on "The Eczemas." He was followed by Dr. C. W. Stallard, Montgomery, with a paper on "Diagnosis of Sacro-iliac Relaxation with Operative Treatment." Both of these papers were very interesting and instructive and were discussed by the members present.

RALPH HOGSHEAD, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular monthly meeting at the Aracoma Hotel on the evening of May 23 with a good attendance. At this meeting Dr. C. L. Border submitted his resignation as Secretary and Dr. V. A. Deason was elected to fill out the unexpired term. Dr. Border is leaving for a new location.

The scientific program was presented by Dr. Leo Bean and Dr. Charles E. Holzer of Gallipolis, Ohio. Dr. Bean's subject was "Bronchiectasis," with a lantern slide demonstration. Dr. Holzer spoke on "Surgery of the Biliary Tract." Both of these papers were very interesting and instructive.

During the business session, the Society adopted a resolution asking the State Health Department, the Logan County Health Department and the Logan County Court to see that patients treated at the Logan County Health Department be absolutely indigent cases and that all beauticians, barbers and others required by law to have health examinations be required to get such examinations done by private physicians.

V. A. DEASON, *Secretary*.

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society was held at the Morgantown Country Club on the evening of June 5, 1934. Dinner was served at 6 o'clock and following this the meeting was called to order by the President, Dr. B. M. Stout.

During the business session, the Society went on record as disapproving "list" hospital practice and upheld the action of the State Medical Association in its stand against it. Also the Society instructed its Board of Censors to investigate the forms of contract practice carried on by the different coal companies in the county. A report on the meeting of the Association House of Delegates at Huntington was made by Dr. C. C. Romine and Dr. C. B. Wylie, and this was followed by a discussion on examination fees for dairymen and teachers, and for relief employees.

The scientific program was presented by Dr. F. R. Whittlesey, Morgantown, and Dr. J. C. Pickett, Pursglove. Dr. Whittlesey spoke on "Heart Disease," his paper bringing out many valuable points. Discussion was carried on by Drs. Johnson, Thompson, Brannan, Romine, G. R. Maxwell and Fisher.

Dr. Pickett talked on "Disabilities Resulting from Injuries to the Vertebral Column," and covered the subject in a masterly manner. His paper was discussed by Drs. Romine, Cottle and Brannan. Fifteen members and two visitors were in attendance.

G. R. MAXWELL, *Secretary*.

LEWIS COUNTY

The final spring meeting of the Lewis County Medical Society was held at Weston on June 7 with Dr. William C. D. McCuskey, Wheeling, as the guest speaker. His subject was "Trans-urethral Resection of the Prostate." The subject was well presented and had much practical value, which was evidenced by the lively discussion which followed.

The Society adjourned for the summer months, the next meeting to be held in September.

THERESA O. SNAITH, *Secretary*.

DR. ERNEST R. McINTOSH

Dr. Ernest R. McIntosh, Weston, died June 2, 1934, at the age of 59, of carcinoma of the bladder.

Dr. McIntosh was a native of Boston, and a graduate of Tuft's Medical College. He came to West Virginia early in his professional life and limited his practice to diseases of the eye, ear, nose and throat. His first location was Marlinton where he was associated with the Marlinton Hospital. In 1908 he located at Elkins where he was for twenty-two years a member of the staff of the Elkins City Hospital.

In 1930 he moved to Weston and became associated with the General Hospital staff. He was special examiner for the local veterans' bureau and at one time was examiner for the city schools. He is survived by the widow and a daughter.

The Lewis County Medical Society, of which Dr. McIntosh was an active member, adopted the following resolution on his death:

"WHEREAS, in the death of our colleague, Dr. Ernest McIntosh, we the members of the Lewis County Medical Society desire to express our grief and sense of personal loss for one whose high standard of ethics and loyalty to his fellow workers gained him the respect of all who knew him.

"*Be it Resolved*, that we hereby tender our sympathy to the bereaved family and that we ever hold in memory his many lovable qualities."

AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will hold its Nineteenth Annual Clinical Session in Philadelphia, April 29 - May 3, 1935.

Announcement of these dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1935 meetings.

CONVENTION TRANSACTIONS

Sixty-Seventh Annual Meeting, West Virginia State Medical Association

COUNCIL MEETINGS

The Council of the West Virginia State Medical Association met in the Hotel Pritchard, Huntington, at 10 o'clock on the morning of May 14, 1934 with 13 members and 12 visitors in attendance. Following the approval of the minutes of the preceding meeting the reports of the Executive Secretary, the Publication Committee and the District Councillors were received and filed. The various committee reports were referred to the House of Delegates.

On motion of Dr. M. T. Morrison, it was voted to present the names of Dr. H. P. Linsz, Wheeling, and Dr. W. B. Gaston, Clarksburg, for affiliate fellowship in the American Medical Association.

Honorary memberships in the Association were conferred upon Dr. C. O. Henry, Dr. H. R. Johnson and Dr. A. L. Peters, all of Fairmont, and Dr. U. L. Dearman, Parkersburg.

Following a report by Dr. T. M. Hood and others for the Reeves Memorial committee, the Council voted to appropriate a sum not to exceed $500 for the erection of a monument in honor of Dr. James E. Reeves, the founder of the Association, at Rivesville, W. Va.

On motion of Dr. Morrison, the present Journal Publication Committee was reelected to serve for 1935.

Dr. W. R. Goff brought up the question of county society jurisdiction over Roane county, pointing out that the Academy of Medicine of Parkersburg had this jurisdiction according to charter. He stated that a number of Roane county doctors had recently joined the Kanawha Medical Society at Charleston without the permission or consent of the Academy. Without objection this matter was referred by the Chairman to Dr. Goff and Dr. G. G. Irwin, Councillor for the Kanawha district, for settlement.

Dr. Irwin then introduced a resolution on list practice within the confines of the Kanawha Medical Society, commending the Kanawha Medical Society for recent action pertaining thereto, and moved its adoption. A number of amendments and substitute resolutions were offered and the privilege of the floor was extended to those visitors who wished to discuss the question. The Council then went into executive session at which time Dr. D. A. MacGregor, Council Chairman, ruled the resolution, with amendments and substitutes, out of order.

The meeting then recessed to reconvene at a recessed meeting at 9 o'clock on Tuesday morning, May 15, 1934.

A recessed meeting of the Council of the West Virginia State Medical Association was held at the Hotel Pritchard, Huntington, at 9 o'clock on the morning of May 15, 1934 with 14 Councillors in attendance.

Dr. Albert H. Hoge offered the following resolution:

"THE COUNCIL of the West Virginia State Medical Association, in regular session at Huntington, May 14, 1934, hereby recognizes that the House of Delegates of said Association did, by unanimous vote on June 21, 1932, record its disapproval of the present plan of list hospital practice. It especially recorded disapproval of that part in which the employee is required to contribute to a fund to defray hospital, medical and surgical care for injuries received in line of duty that properly should be paid for by the state compensation fund.

"SAID COUNCIL, on August 2, 1932, authorized an investigation of the alleged abuses. The investigation was made by the American College of Surgeons.

"THE COUNCIL, in a called meeting at Charleston on December 30, 1932, read the report of the College; which report recorded disapproval of the named abuse. At this meeting the Council voted unanimously its disapproval of the compensation abuses.

"THE REPORT of the College was further submitted to the House of Delegates in regular session at Charleston on May 23, 1933. By an almost unanimous vote, the House voiced its disapproval of the compensation abuses.

"*Now be it Resolved* that the Council of the West Virginia State Medical Association, in regular session in Huntington, May 14, 1934, acting under authority granted under Section 3, Chapter 7, of the by-laws of the West Virginia Medical Association, does hereby condemn the methods used by those hospitals that enter into contracts with employers of labor or individuals, who require their employees to contribute to a fund to defray hospital, medical and surgical service for industrial injuries that properly belong under the State Compensation Department.

"RECOGNIZING that the county society has primary jurisdiction in the regulation of its members,

"*Therefore be it Further Resolved* that we, the Council, urgently recommend to the individual county societies that they take such action as may be considered necessary by them to correct this and any other abuses that now exist or that may later develop in connection with list practice.

"*And be it Further Resolved,* that a copy of these resolutions be mailed promptly by the Secretary to every hospital throughout the state and to the secretaries of every component society in the Association."

On motion of Dr. Hoge, seconded by Dr. W. T. Gocke, the resolution was adopted.

Dr. Hoge then offered a resolution empowering the Council Chairman to appoint a committee of five members to confer with the coal operators associations, the United Mine Workers of America and with representatives of the Workman's Compensation department upon the questions of medical and hospital list practice, compensible injuries and related matters, and endeavor to reach an agreement equitable and agreeable to all parties concerned, and report conclusions and recommendations to the next regular council meeting in December, 1934.

This motion was seconded by Dr. Ray M. Bobbitt and carried. Dr. MacGregor then announced that the special committee created under the foregoing resolution would consist of Dr. C. R. Ogden, Clarksburg, Chairman; Dr. W. S. Fulton, Wheeling; Dr. Ray M. Bobbitt, Huntington, and Dr. R. H. Walker and Dr. J. Ross Hunter, Charleston.

It was moved, seconded and carried that the Association defray the necessary traveling expenses of the above named committee in carrying out the provisions of the resolution.

Dr. Hoge then offered the following resolution:

"WHEREAS, the Council of the West Virginia State Medical Association held at Huntington, West Virginia, May 15, 1934, acting upon a resolution referred by the House of Delegates of said Association, does find that at Weston State Hospital certain cases are being treated or operated upon that are not mental cases. It was further found that the superintendent, Dr. J. E. Offner, is doing this work in good faith and was acting under an order issued by the state board of control of West Virginia, authorizing this work on private patients, the remuneration received to be used for the purchase of new and much needed equipment, and

"WHEREAS, many of the leading physicians and surgeons, members of this Association, have offered their services gratis for the time being to assist in any way to help make Weston State Hospital a success,

"*Therefore be it Resolved* that we hereby record our disapproval of the treatment of any non-mental cases in the four state institutions maintained for the treatment of mental cases.

"*Be it Further Resolved,* that we do hereby record our hearty approval of the efforts being made by his Excellency, Governor H. G. Kump, in attempting to place the various state institutions for the sick and unfortunate on a higher and more scientific basis.

"*Be it Further Resolved,* that we renew our promise of assistance and hearty coöperation in this commendable and difficult task, and

"*Be it Further Resolved,* that a copy of this resolution be referred to his Excellency, Governor Kump, and one to each member of the State Board of Control of West Virginia."

This resolution was seconded by Dr. Morrison and carried.

On motion of Dr. Bobbitt, seconded by Dr. Morrison, the Council voted unanimously to purchase and take over the Nicholson property in South Hills and thereby relieve the obligation of the individual members who originally purchased the property for the Association.

On motion of Dr. Irwin, the Council adjourned.

JOE W. SAVAGE,
Executive Secretary.

HOUSE OF DELEGATES

May 14, 1934

The House of Delegates of the West Virginia State Medical Association met in the Hotel Pritchard, Huntington, at 8 o'clock on the evening of May 14, 1934, with Dr. Roy Ben Miller, President, presiding. Minutes of the previous meeting were dispensed with and approved as published in the WEST VIRGINIA MEDICAL JOURNAL.

The following reports were received and filed:

Report of the Executive Secretary by Mr. Joe W. Savage.

Report of the Treasurer by Dr. T. M. Barber.

Report of the Committee on Necrology by Dr. C. O. Henry.

Report of the Committee on Public Policy and Legislation by Dr. R. A. Ireland.

Report of the Publication Committee by Dr. James R. Bloss.

Report of the Committee on Scientific Work by Dr. R. J. Wilkinson.

Report of the Permanent Home Committee by Dr. W. P. Black.

Report of the Cancer Committee by Dr. R. B. Bailey.

Report of the Committee on Medical Relief by Dr. B. H. Swint.

Report of the Committee on the Reeves Memorial Monument by Dr. T. M. Hood.

In accepting the report of the Permanent Home Committee, the House of Delegates temporarily discontinued the committee at the request of its members.

In carrying out a recommendation of the Committee on Public Policy and Legislation, Dr. Ray offered a resolution recommending the examination fee for barbers and teachers be fixed at $3, exclusive of Wassermanns, which motion was seconded and carried.

Dr. Russell C. Bond, on behalf of the Section on Pediatrics, presented a resolution requesting the state health department and local health forces to desist from the private practice of medicine in providing wholesale immunization through free clinics and concentrate on a program of intensive health education to instruct the physicians and public in the value of preventive medicine; the dangers of ignorance and neglect. The resolution further expressed the willingness of the profession to serve the unfortunates on direct relief and suggested that immunizations be recognized as a part of the regular relief services. This resolution was duly seconded and carried.

Dr. S. S. Hall recommended the appointment of a committee to investigate a charge that private surgical work was being done at the Weston State Hospital for the insane. With objection, Dr. Miller referred this matter to the Council.

The House of Delegates then adjourned at 9:50 o'clock.

May 15, 1934

The House of Delegates of the West Virginia State Medical Association convened in the Hotel Pritchard, Huntington, on the evening of May 15, 1934, with Dr. Roy Ben Miller, President, presiding. The first order of business being the election of President, Dr. Albert H. Hoge, Bluefield, placed in nomination Dr. R. H. Walker, Charleston. Dr. Walker's name was variously seconded. There being no further nominations, they were declared closed and the Secretary cast the vote of the House of Delegates for Dr. Walker.

The remaining officers and committee members were elected as follows:

First Vice President, Dr. W. W. Strange, Huntington.

Second Vice President, Dr. Robert C. Hood, Clarksburg.

Treasurer, Dr. T. M. Barber, Charleston.

First District Councillor, Dr. E. P. Smith, Fairmont.

Second District Councillor, Dr. W. G. Harper, Elkins.

Third District Councillor, Dr. W. T. Gocke, Clarksburg.

Fourth District Councillor, Dr. W. R. Goff, Parkersburg.

Fifth District Councillor, Dr. B. S. Clements, Matoaka.

Sixth District Councillor, Dr. G. G. Irwin, Charleston.

Chairman, Committee on Scientific Work, Dr. Robert King Buford, Charleston.

Members, Committee on Scientific Work, Dr. B. S. Brake, Clarksburg, and Dr. Fred Brown, Huntington.

Committee on Professional Relations, Dr. C. C. Romine, Morgantown, and Dr. G. R. Miller, Fairview.

Committee on Medical Education, Dr. Howard T. Phillips, Wheeling; Dr. S. L. Cherry, Clarksburg, and Dr. C. B. Wylie, Morgantown.

Delegates, American Medical Association, Dr. James R. Bloss, Huntington, and Dr. Howard T. Phillips, Wheeling.

Alternate delegates, Dr. W. E. Vest, Huntington, and Dr. Ivan Fawcett, Wheeling.

Place for 1935 meeting, Wheeling.

Dr. Frank V. Langfitt, Clarksburg, then read the report of the Committee on the President's Annual Address, commending Dr. Miller for his vigor and fearless presentation and urging the House of Delegates to go on record as endorsing Dr. Miller's recommendations. On motion of Dr. S. S. Hall, the report was accepted.

There being no further business to come before the House of Delegates, the meeting adjourned at 10:35 o'clock.

JOE W. SAVAGE,
Executive Secretary.

REPORT OF THE EXECUTIVE SECRETARY

Each year, as the activities of the Association grow and branch out, this annual report of mine becomes shorter. There will be reports presented to you tonight by the JOURNAL Publication Committee, the Committee on Public Policy and Legislation, the Permanent Home Committee, the Committee on Scientific Work, the State Committee on Medical Relief and various other groups and committees of this Association. I have played a modest part in making all of these reports possible, and I can see no good reason for covering the same ground with more detail. The committee reports largely cover the progress in the aims and objects of the Association, so this report will confine itself mostly to routine matters, to finances and to membership.

First I want to say a word or two about the Nicholson home. The Association could save in the neighborhood of $400 each year for the next several years by a readjustment of the method of financing this property. Several years ago a group of five or six members of the Association, in an effort to recoup something for the Association out of the Nicholson loss, purchased the Nicholson home in South Hills, Charleston, for $13,500. They gave their individual notes in that amount, then rented the house for $100 per month and since the original purchase, until about one year ago, the rent took care of the interest, insurance and taxes. Early last year the $100 tenants vacated and the house remained idle for several months. Rents had fallen off materially and the rent was finally reduced to $70 per month before a new tenant was found. It was necessary to spend considerable money for repairs. Suddenly the note came due and there was no money to pay interest.

The men who were on the note had a written contract that any profit that might accrue from the sale of the Nicholson property would go to this Association. In view of this contract, and the loyalty of these splendid doctors, it was felt that they should not be called upon to suffer for endeavoring to aid the Association. Therefore the Association advanced the money to take care of the interest. This has been necessary on two occasions.

As matters how stand, interest and taxes and insurance on the property amount to approximately $1,000 per year. The rental brings in $840 per year. So it looks like, until the property is sold, that the Association will have to pay out at least $160 per year to keep the property going. This $160 is, of course, a total loss.

Now the Association has cash investments in government bonds and savings accounts, sufficient money to raise $13,500 without affecting the general fund and still leaving sufficient balances in the indigent, defense and JOURNAL funds. The present interest rate on this $13,500 amounts to $466 per year. The total interest on the debt for the Nicholson home is $810 per year. So we could increase our interest from $466 to $810 and save $344 by the simple expedient of taking the Nicholson home off the hands of the doctors now legally responsible for it. In addition, if we took over the Nicholson property, then the bond on the Executive Secretary could be cut in half, thus reducing the premium cost from $100 to $50 per year. This saving, with the $344 increase in interest, would make a total of $394 per year.

The question of whether or not the Nicholson property is now a good investment is not involved in this discussion. We are so morally obligated for the debt on this home that we might just as well consider it as our debt. If we do consider it our debt, the next question is how it should be carried. If we take this property over we will reduce our cash reserve. That is the objection. If we don't take the property over we will continue to pay six percent on the debt while we receive only about three and one-half percent on our cash reserve. That is the argument in favor of acquiring the property. The saving is $394 per year. The question is, therefore, which is the wisest move; to buy or not to buy.

I would like very much to have this matter discussed by this body. From a strictly business stand-

point, I personally feel that it would be a wise move. However, I realize that there may be other objections which I have not thought of.

One of the most creditable performances of the Association for a good many years is the manner in which the Association, through the various county medical societies, took charge of the U. R. A. Emergency medical aid early in the present year. As most of you remember, the Unemployment Relief Administration handed us a schedule of allowances last July which were more or less fixed on a national scale; at least the same fees prevailed in practically every state in the Union. This schedule provided $1 for a house call, 50 cents for an office call, $10 for obstetric cases and five cents mileage. We went along on this fee schedule until fall and there were so many complaints by that time that we decided to set up our own state-wide machinery in an effort not only to adjust the fees but to control the actual Emergency Medical aid provided in this state.

Late in November every county medical society in the state was contacted and asked to name a county medical relief committee. The response was splendid. Within two weeks almost every society in the state was organized with such a committee. Several of the societies covering more than one county sent in committees for each county in their jurisdiction.

With this ground-work accomplished, the Council at its December meeting drew up a set of resolutions setting forth exactly what the Association would and would not do in providing emergency medical aid. This resolution provided for an adjustment in fees, it provided that county relief administrators must work through the county medical society relief committees on all questions pertaining to the profession, it provided for a state medical relief committee of the Association to serve as a court of appeal on all relief problems that could not be successfully adjusted by the county committees, it provided that State Unemployment Relief Administration should consult this committee and secure its permission before inaugurating any new polices concerning medical aid, it provided that all agreements made between our state committee and the Unemployment Relief Administration be for the duration of the emergency only and that our Committee would be the sole judge of when the emergency was over.

Our State Committee was appointed jointly by Dr. MacGregor and Dr. Miller, the outgoing and incoming Presidents. Because all activities were centered at Charleston, all three members were picked from that city. Those named were Dr. B. H. Swint, Chairman; Dr. R. D. Roller and Dr. G. G. Irwin. The career of this committee has been of considerable interest; particularly because these men have done their work so well and so successfully. I have given you this resume of what led up to the appointment of the committee. Its activities will be presented to you shortly in a special report by Dr. Swint.

At the Council meeting last December, my office was authorized to negotiate with a number of automobile insurance companies relative to securing some new and better form of automobile insurance for the members of this Association. Acting under this authority I conferred with the representatives of five representative companies. The best proposition that was made came from the American Motorists Mutual, of Chicago. Due to a court decision in the Flat Top Insurance company case in Mercer county, this company offered to group all of our cars in a fleet at fleet rates. The saving to each member under this plan would have been approximately 40 percent on the premium cost. Just as this plan was ready to go into effect, however, the Flat Top Insurance Company case was appealed to the Supreme Court where it is still pending. Until this case is decided, our arrangement with the American Motorists Mutual will be held in abeyance. If the Supreme Court rules that organizations, such as ours, may lawfully secure fleet rates then we will go ahead. Otherwise a different arrangement of some kind will have to be worked out. This is the status of this matter at the present time.

As for the routine services of the Association headquarters, they have been very much the same as in the past, except that they increase from year to year. During the past 12 months I have settled more compensation claims and placed more physicians in temporary and permanent employment than during any other similar period. During the two special sessions of the legislature I kept in close touch with everything that was going on and I can assure you that your interests were well looked after. Only two or three minor matters came up of interest to this Association and I think they will be covered by Dr. Ireland in his legislative report.

The financial statement of the WEST VIRGINIA MEDICAL JOURNAL was turned over to the Publication Board some days ago. I have not seen their

report so I don't know how much of it will deal with actual figures. I simply wish to report that the JOURNAL cleared $573.52 during the fiscal year ending May 1, 1934, with all bills paid and the depression apparently behind us. The first eight months of this fiscal period, from May through December, 1933, were the hardest months the JOURNAL has ever experienced. It was a hard fight during this period to keep our heads above water. We just managed to do a little better than break even, so that our reserve was not touched. Most of the profit, therefore, was earned during the first four months of 1934. Since the beginning of the year we have negotiated a number of splendid new advertising contracts and the JOURNAL is now showing a comfortable profit each month. The May issue, which is not included in this report, carried the second largest volume of advertising that we have ever had.

The total cash reserve of the JOURNAL now amounts to $6,854.07. To this should be added the sum of $1,500 which was borrowed by the Association in 1931, which brings the total assets to $8,354.07. This has all been accumulated during the past seven years on advertising alone. The JOURNAL has never drawn one cent from the Association in circulation fees. The total assets represent an annual JOURNAL profit of better than $1,100 per year.

The total cash securities of the Association during the past fiscal period were increased $3,281.69. This includes every department of the Association. This brings the total reserve of the Association at the present time up to $26,930.26.

This is made up as follows:

General Funds	$ 5,689.27
Medical Journal Account	6,854.07
Indigent Fund	5,360.08
Medical Defense Fund	3,270.24
Convention Fund	318.75
Nicholson Rent Account	289.02
Nicholson Insurance Policy	5,148.83
TOTAL	$26,930.26

Seven years ago this Association was broke.

The biggest financial improvement shown by the Association during the last fiscal period was in the general fund, which carries all money collected from dues. Last year, when the depression was at its worst, these collections fell below normal which partly accounts for the large increase this year. Last year the total collections, as of May 1, amounted to $8,463.50, or about one thousand dollars below normal. This year the total collections amounted to $12,130.50; or about two thousand dollars above normal. This increase in income, of course, indicates a considerable increase in membership which will be covered shortly.

Before leaving the financial statement, I might say that the expenditures of the Association for the last fiscal period were decreased $599.56 under the previous year. This decrease in expenditures, plus the increase in the collection of dues, plus the profit on the JOURNAL, has made it possible for us to enjoy one of our best financial years.

The total membership of the Association to date is 1086, with seven months still to go. At the present time we have 92 unpaid members as against 237 unpaid members at convention time last year. Our paid up membership is 1004, against 852 last year. In other words we have made a net gain of 152 members, not counting delinquents, and we have reduced our delinquent list by 129 members.

This year, for the first time since I have been your Secretary, I have the pleasure of reporting one entire Councillor district 100 percent paid up. That is the third district, comprising the Harrison, Doddridge, Lewis and Central West Virginia Societies. The Councillors for the District, Doctors Morrison and Gocke, were largely responsible for this splendid record and I think they are to be highly complimented for their splendid work.

Two other districts, I think, deserve special mention. The Second District, headed by Doctors Oates and Maxwell, with a total membership of 137, has only seven delinquents and the Sixth District, headed by Doctors Smith and Irwin, with a total membership of 251, has only seven delinquents.

There are several societies outside the 100 percent Third District that also deserve honorable mention. These 100 percent societies include Kanawha with 251—the largest ever to be 100%; Barbour-Randolph-Tucker, with 30 members; Grant, Hardy, Hampshire, Mineral with 28 members; Parkersburg with 64 members; Raleigh with 47; Mason with six members and Wyoming with ten members. Harrison county has 74 members, an increase of eight over last year. Parkersburg gained 18 members during the year.

Wyoming county, listed as a 100 percent society has a rather small group but bears the distinction of increasing its membership 100 percent over last year; from five to ten members.

In closing I wish to say once more that the work of my office during the past 12 months has

been most pleasant and happy. In my seven years with the Association, I have never received more wholehearted and sincere coöperation from the membership than during the past year. I believe that organized medicine commands more influence, prestige and respect in West Virginia today than ever before. The aims and objectives of this Association have been held on a high and unselfish plane. More and more the public is awakening to a realization that the objectives of the West Virginia State Medical Association concern the lay citizens of this state even more than the medical profession.

I wish to take this opportunity to express my appreciation to Dr. MacGregor and Dr. Miller, our past and present Presidents, to the officers and councillors, to the various committees and to the entire membership of this Association for the support, assistance and coöperation given to this office during the past year.

Respectfully submitted,

JOE W. SAVAGE,
Executive Secretary.

CERTIFICATE OF AUDITOR

To the Council,
West Virginia State Medical Association,
Charleston, West Virginia.

GENTLEMEN:

Pursuant to my engagement, I have audited the receipts and disbursements of the several accounts of the West Virginia State Medical Association covering the fiscal year ended May 1, 1934. Beginning with the balances as set forth in my audit for the preceding year, I have made test verifications of all receipts, examined cancelled vouchers covering all disbursements, reconciled balances in banks with statements from the depositories and inspected the securities held in the Medical Journal and Indigent accounts.

By reference to the next following page, it will be noted there was a balance on hand as of May 1, 1933 of $18,499.74, a total income from all sources of $18,750.99, total disbursements of $15,469.30, leaving a balance in cash and securities at the end of the period of $21,781.43. In addition to this balance, the insurance carried on the life of Dr. Nicholson has a cash surrender value as of July 1, 1934 of $5,148.83. The annual premium on this insurance, paid from the Indigent Fund, is $1,301.00; of this amount $823.83 was added to the cash value of the policy, increasing it's cash value from $4,325.00 to $5,148.83.

The operation of the Association during the current period compares favorably with that of the preceding period. Cash and securities were increased $3,281.69 accounted for as follows:

Increase in Income	$4,175.20
Decrease in Disbursements	599.56
TOTAL	$4,774.76

Deduct—		
Cash Balance May 1, 1932	$19,992.81	
Cash Balance May 1, 1933	18,499.74	1,493.07
Increase		$3,281.69

I have audited the receipts and disbursements of the West Virginia State Medical Association covering the fiscal year ended May 1, 1934, composed of the several accounts as shown in statements attached hereto, namely: General Funds, West Virginia Medical Journal Account, Indigent Fund, Medical Defense Fund, Convention Fund and Nicholson Property—Rent Account, and I hereby certify that all receipts of record have been fully accounted for as stated in the attached statements and that the balances at the end of the period, composed of cash and securities, have been verified.

Respectfully submitted,
B. H. PUCKETT,
Certified Public Accountant.

COMBINED STATEMENT OF RECEIPTS AND DISBURSEMENTS AFTER ELIMINATING INTER-ACCOUNT TRANSFERS

FISCAL YEAR ENDED MAY 1, 1934

Balances Brought Forward May 1, 1933:		
General Fund	$ 4,738.41	
Medical Journal Account	6,367.55	
Indigent Fund	4,964.09	
Medical Defense Fund	2,069.66	
Convention Fund	360.03	18,499.74
Receipts:		
Dues	$12,130.50	
Advertising	4,509.04	
Commercial Exhibits	976.50	
Nicholson Property — Rent Account	406.42	
Interest on Bonds	530.40	
Interest on Savings Accounts	80.37	
Emblems and Frames	117.00	
Miscellaneous	.76	18,750.99
		$37,250.73
Disbursements:		
General Funds Account	$ 7,829.64	
Medical Journal Account	4,378.18	
Indigent Funds Account	1,601.26	
Medical Defense Funds Account	375.04	
Convention Funds Account	1,167.78	
Nicholson Property — Rent Account	117.40	15,469.30
BALANCES MAY 1, 1934:		
General Fund	$ 5,689.27	
Medical Journal Account	6,854.07	
Indigent Fund	5,360.08	
Medical Defense Fund	3,270.24	
Convention Fund	318.75	
Nicholson Property — Rent Account	289.02	$21,781.43

GENERAL FUND

Balance Brought Forward May 1, 1933		$ 4,738.41
Receipts:		
Dues	$12,203.00	
Less - Refunds	72.50	12,130.50
		$16,868.91

Disbursements:

Salary of Executive Secretary	$ 4,200.00	
Office Salaries	1,017.50	
Office Supplies and Expense	231.46	
Office and Library Rent	480.00	
Library Expense	48.54	
Telephone and Telegraph	182.34	
Postage	300.00	
Traveling Expense	373.64	
Convention Expense	167.25	
Surety Bond—Executive Sec'y.	50.00	
Legal Retainer—1934	100.00	
Miscellaneous Unclassified	97.00	
Loan to John V. Ray, Trustee, Nicholson Property for interest and taxes	581.91	
	$ 7,829.64	
TRANSFERS:		
Indigent Fund $1,690.50		
Medical Defense Fund 1,509.50		
Convention Fund 150.00	3,350.00	11,179.64
BALANCE MAY 1, 1934:		
Charleston National Bank:		
General Funds Account $ 5,395.14		
Secretary's Account 294.13	$ 5,689.27	

WEST VIRGINIA MEDICAL JOURNAL ACCOUNT

Balance Brought Forward May 1, 1933		$ 6,367.55
Receipts:		
Advertising $5,161.50		
Less - Discounts 652.46	4,509.04	
Bond Interest	237.90	
Emblems and Frames Sold	117.00	
Refund for Telegram	.76	4,864.70
		$11,232.25

Disbursements:

BALANCE MAY 1, 1934:		
Printing $3,770.25		
Less - Discounts 74.80	3,695.45	
Engraving 283.81		
Less - Discounts 34.56	249.25	
Postage	151.05	
Advertising Commission	26.30	
Calendar Plaques	37.71	
Auto Emblems and Express	197.49	
Miscellaneous Unclassified	20.93	4,378.18
Charleston National Bank	$ 1,106.96	
United States Treasury Bonds —($4.700 par value)	4,679.71	
Annuity Contract with Fidelity Investment Association:		
Balance May 1, 1933 $714.60		
Paid this period 352.80	1,067.40	$ 6,854.07

INDIGENT FUND

Balance Brought Forward May 1, 1933		$ 4,964.09
Receipts:		
Transferred from General funds	$ 1,690.50	
Interest on Bonds	292.50	
Interest on Savings Accounts	14.25	1,997.25
		$ 6,961.34

Disbursements:

Annual Premium for Insurance on Life of Dr. Hugh G. Nicholson	$ 1,301.00*	
Mrs. S. A. Daniel	300.00	
Federal Check Tax	.26	1,601.26
BALANCE MAY 1, 1934:		
Charleston National Bank—Savings Account No. 48,781	$ 1,244.75	
Federal Land Bank Bonds—($4.500 par value)	4,115.33	$ 5,360.08

*Cash surrender value of life insurance $5,148.83

MEDICAL DEFENSE FUND

Balance Brought Forward May 1, 1933		$ 2,069.66
Receipts:		
Transferred from General funds	$ 1,509.50	
Interest on Savings Account	66.12	1,575.62
		$ 3,645.28

Disbursements:

Robert Hogg—Attorney Fees	$ 250.00	
H. L. Snyder, Jr.—Attorney Fees	100.00	
C. T. Francis, M. D.—Witness	25.00	
Federal Check Tax	.04	375.04

Receipts:

BALANCE MAY 1, 1934:		
Charleston National Bank—Savings Account No. 40,000		$ 3,270.24

CONVENTION FUND

Balance Brought Forward May 1, 1933		$ 360.03
Receipts:		
Transferred from General funds	$ 150.00	
Commercial Exhibits	976.50	1,126.50
		$ 1,486.53

Disbursements:

St. Louis Button Company, convention badges	$ 30.05
The Robbins Company, President's charm	13.92
Tablet and Ticket Company, stickers	12.64
Postmaster, stamps—Official Call	30.00
Daisy Miller, 4 days labor	10.00
Postmaster, program stamps	18.45
Thomas, Field & Company, 3 bolts cloth	7.60
Daniel Boone Hotel, banquet	96.25
Rosenblatt & Hunt, wiring	54.65
Virginia Dillon, registration	12.00
D. H. Gates, Trustee, convention hall	75.00
Dr. C. C. Sturgis, traveling expense	39.76
Coyle & Richardson, supplies	3.95
Dr. H. R. Casparis, traveling expense	50.43
Mrs. Joseph McCurl, shorthand	15.00
J. M. Gates Sons Company, sign material	3.10
Thomas, Field & Company, 2 bolts cloth	5.25
Charleston Lumber Company, booth lumber	24.08
Woodyard Printers, programs, etc.	85.15

Galperin Music Company, reading stand	4.25	
B. Weirsteiner, cash items	25.00	
Murray Smith, operating stereoptican	12.50	
Herbert Vaughan, labor	10.00	
General J. Tandy Ellis, traveling expense	45.00	
Dana Evans, shorthand	35.00	
G. H. Barksdale, ticket refund	4.00	
Colonels Orchestra, music	85.00	
Women's Auxiliary, banquet flowers	10.00	
Riley Wilson, entertainment	12.50	
Dr. P. Brook Bland, traveling expense	48.60	
Harry Womelsdorf, supplies	5.95	
Mrs. Edna Veon, report—Pediatrics	12.50	
Dr. Ralph Pemberton, traveling expense	52.00	
Eisensmith Jewelry Company, golf trophy	22.25	
Dana Evans, shorthand	20.00	
Dana Evans, shorthand	70.00	
Dr. Alvan L. Barach, traveling expense	61.00	
Tablet & Ticket Company, 3,000 stickers	8.53	
Joe W. Savage, traveling expense	5.00	
St. Louis Button Company, badges	30.60	
Federal Check Tax	.82	1,167.78
BALANCE MAY 1, 1934: Kanawha Valley Bank		$ 318.75

NICHOLSON PROPERTY—JOHN V. RAY, RENT ACCOUNT

Transferred from John V. Ray, April 27, 1934		$ 21.23
Receipts:		
Rent—R. H. Kyle		385.19
		$ 406.42
Disbursements:		
DeVan & Company, tornado insurance	$ 8.00	
R. C. Andrews, sheriff—taxes	109.36	
Federal Check Tax	.04	117.40
BALANCE MAY 1, 1934: Charleston National Bank		$ 289.02

COMMITTEE REPORTS

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

At the Charleston meeting last year we reported on the regular session of the West Virginia State Legislature. Since that time there have been two extraordinary sessions. Both of these sessions were limited to tax-producing measures. However there are one or two matters in which we feel you may be interested.

Of some importance to this Association is the Barber's Bill which went through in the final days of the last special session. We have opposed this bill for the past 10 or 12 years because it always provided that the sanitary and health regulations of barber and beauty shops would be promulgated by a lay board of barbers and beauticians. This past year, however, representatives of the barbers came to us and asked us to redraft their bill so that it would not conflict with the interests of the medical profession.

With the help of Dr. McClue, State Health Commissioner, we placed all health and sanitary regulations under the State Health Department. Dr. McClue was made Secretary of the Barber's Examining Board. The bill also provided that all barbers and beauticians be required to take an annual physical examination. With these changes we withdrew our objections to the bill. It is now a law. As a matter somewhat pertaining to public policy we recommend that the various county medical societies consider the fee to be charged for these annual physical examinations. We feel that it would be ethical and a matter of good business for the members of each county society to agree upon a fixed charge. Barbers and beauticians are in daily contact with a large number of people and if there was any considerable variation in the fee charged in any given city or county, we believe it would reflect some discredit not only upon the profession but upon our program of annual physical examinations for all classes of pepole.

Physical examinations of teachers are also required under the recently enacted County Unit school bill and we make the same recommendation in the case of teachers.

As you know, both doctor and hospital bills were exempted from the provisions of the consumers' sales tax. This needs no comment.

Only one bill gave us any difficulty during the special session, and that only temporarily. This was a bill commanding the public health council to license one J. H. Kidwell to practice medicine. Most of these similar bills in the past have commanded the public health council to give examinations, but not licenses. We have never paid much attention to the latter, because such measures have always been well taken care of by the Public Health Council. The Kidwell bill, however, appeared as though it might establish a precedent.

There was a strong sentiment against the bill in the House so we purposely "laid off", in hopes of seeing the bill killed without arousing the animosity of its sponsors. However it went through the House by the narrow margin of three votes. In the Senate we requested that the bill be referred to the Judiciary Committee, which was done. The

Judiciary Committee, at our request, then promptly killed the bill and that was the last heard of it.

Aside from these few minor details, your committee has nothing further to report.

Respectfully submitted,

R. A. IRELAND, *Chairman.*

REPORT OF PUBLICATION COMMITTEE

In compliance with the usual procedure we submit to you a report of our work for the past year.

You will have noted that the physical make-up of the JOURNAL has shown no particular change. We have continued the same quality of paper stock and have felt the type was most satisfactory, so have left this unchanged. Many commendatory comments have been received concerning this.

As in the past your committee has made every effort to see that typographical and other printing errors should be reduced to a minimum.

It has been quite a task to prepare the material submitted for publication. It would seem in many instances an almost hopeless task to get papers, essays and so on ready for the printers. At times we have felt much timidity about proceeding with an author's manuscript for fear he might fail to recognize his brain-child. We would urge that those submitting articles, go over them with care to see that their ideas may be clearly expressed. Another point we would stress is that of spelling and of punctuation. The committee feels that these things are due to carelessness, but at times we have been tempted to return manuscripts of much merit because of the impossible spelling, absence of or incorrect punctuation combined with a lack of lucidity which made the thought of the article scarcely understandable.

From a financial standpoint the past year has not made a particularly glowing record. The first eight months of the year were the most discouraging advertising months of our experience. During this period is was good fortune that we were able to not show a deficit, the JOURNAL just breaking even. Since the first of the year advertising has improved markedly and each month during this period a small profit has been made. It may interest you to know the issue for this month (May), which is not included in the financial report herewith submitted, has produced the second largest volume of advertising we have ever had. This includes the best months of the JOURNAL's most prosperous period.

The actual JOURNAL profit was only $486.52. To this however, should be added $87.00, which is the cost of 58 automobile emblems which are yet unsold. You will note this makes an actually earned total for the JOURNAL of $573.52. In view of the fact that one of our contemporary journals only cleared $165.60 above cost and that others lost from $1,609.67 to as much as $10,000.00, with far larger membership, we feel that our Association has done particularly well with it's publication.

Beginning with the May (1934) issue the cost of publication increased $25.00 per month. This increase is brought about by operation under the new code. We have no cause for complaint on the score of increased cost of production since it is possible that the new code has probably helped to increase our advertising volume.

Attached is a financial statement of the JOURNAL's condition as of May 1, 1934, prepared by Mr. B. H. Puckett, certified public accountant.

Your committee, in closing this report, can not but mention again the high esteem it has for the Executive Secretary, Mr. Savage. Without his enthusiastic and tireless efforts we feel sure the publication would have suffered grievously. To him alone is due the success shown by the financial statement. We desire to express our appreciation of his assistance.

The committee has worked with complete harmony. It has been an individual and collective pleasure for us to have given of our time and effort in working to the best of our ability for the success of the JOURNAL of our Association. If it is your desire to continue the present committee we assure you that in the future, as in the past, our greatest ambition will be for the advancement of our publication in the peculiar field which a State Medical Journal occupies.

Respectfully submitted,

JAS. R. BLOSS, *Chairman.*

REPORT OF PERMANENT HOME COMMITTEE

One year ago, at the Charleston meeting, this House of Delegates authorized the Council of this Association to take whatever action it might see fit to take in regard to the purchase of a permanent home in Charleston. Your action did not mean that the Council should acquire a permanent home, but simply that the Council could do so if the proper occasion arose.

The Council, in turn, placed the matter in the hands of your Permanent Home Committee, of which I am the chairman. The Council instructed us to look around and, if suitable property could be acquired at low cost, to notify the Council and a special meeting would be called to consider whatever our committee might have in mind.

Acting under these instructions, we found only one piece of property in which we thought the Council would be interested. This was the Charleston Woman's Club building which was ideally suited to our needs. This building and property was in financial difficulty and it appeared that it might be purchased for about $30,000. The original cost of the building and the property was approximately $65,000.

We kept our eye on this building for several months, until finally it was advertised for sale at public auction. At that time we contacted the Kanawha Medical Society and several individual wealthy physicians over the state and pledged some seven or eight thousand dollars for a permanent home if one was acquired. During this period the impression went out that the deal was practically closed and that the Association was all ready to buy this property. However, we were simply attempting to get up a prospectus to submit to the Council if and when the property went on the auction block. We purposely did nothing to hurry the sale of the property and we did not manifest our interest to the mortgage holders, because we felt that we should make no attempt to even consider the purchase until and unless it was a certainty that the building would be lost by the Charleston Woman's Club. In other words we felt that we should stay completely in the background so as not to interfere with the interests of the Woman's Club.

On March 1, 1934 the property was definitely scheduled for public auction. A few days before the first of March, the Woman's Club succeeded in refinancing their building and the whole matter was forthwith dropped.

I have explained this matter in some detail because we feel that there has been considerable misunderstanding over the state in regard to this prospective purchase.

As this prospective deal has fallen through, as there appear to be no other prospective bargains in Charleston real estate, and as the sentiment of the Association seems to have changed to some degree within the past 12 months, we hereby request that your Permanent Home Committee be disbanded. We feel that there is no immediate need for such a committee at this time and we believe that it would be to the best interests of the Association to disband our committee until some future date. If at some future date you desire the services of myself or any member of this committee, we will, as always, be happy to place ourselves at your disposal.

Respectfully submitted,
W. P. BLACK, *Chairman.*

CANCER COMMITTEE

To the Members of the House of Delegates of the West Virginia Medical Association:

The Cancer Committee consists of six members, all of whom have been active during the year 1933-1934, in advancing the gospel of cancer control. The program advised by the American Society for the Control of Cancer was outlined to the various component medical societies of the state. Interesting programs were arranged and presented. In many of the societies, a great deal of interest was shown in these programs. In one society, the Cabell County Medical Society, a study club in surgical pathology was organized, and meetings were held twice a month.

First: The case history was presented by the attending physician.

Second: Laboratory and x-ray data.

Third: Treatment including operative procedure, if any.

Fourth: Presentation of the specimen.

Fifth: Presentation of the patient, if possible.

Sixth: General discussion of the case by the group.

Seventh: Neoplasms of the same or similar nature were shown.

Eighth: In many instances, all of the known tumors of a related nature were presented.

Ninth: Microscopic slides were then presented and a general discussion given by the pathologist.

Talks were given by the various members of the medical profession and committee to nurses' organizations, civic and professional groups, all of which were received most favorably. The laity seemed most appreciative of these talks. Articles, furnished by the American Society for the Control of Cancer, were released to the various daily and weekly newspapers throughout the state. Radio programs were

broadcast by Station WWVA, at Wheeling. A series of twelve broadcasts created a great deal of favorable comment by the medical profession, and there were numerous inquiries by the laity. All of these broadcasts dealt with the early signs and symptoms of cancer, and urged consultation with the family physician for systematic examinations and check-ups on existing lesions.

Summarizing, the following activities have been carried out by the Committee during the first year of its work:

1. County medical society meetings devoted to the subject of cancer in practically every one of the component societies.
2. Several talks on the subject of cancer before lay audiences in different parts of the state.
3. Radio broadcasting programs.
4. Release of a series of newspaper articles to the press.
5. Distribution of literature to the general public from the American Society for the Control of Cancer.

Respectfully submitted,
RUSSELL B. BAILEY, *Chairman.*

COMMITTEE ON MEDICAL RELIEF

This committee on Medical Relief, of which I am the Chairman, was authorized by the Council at the December, 1933 Council meeting to take charge and endeavor to control all emergency medical aid rendered in West Virginia under the Unemployment Relief Administration. At the time we took office, a great deal of our preliminary work had already been accomplished. Through the office of the Executive Secretary, practically every county in the state was organized with a county medical relief committee which was to serve under our jurisdiction.

With this organization to back us up, we first met with the Unemployment Relief Administration at the Capitol building shortly before the New Year. Those present included Mr. C. K. Payne, Rev. John Gass and Mr. John B. Easton of the Unemployment Relief Administration, Mrs. Katheryn Trent, the three members of this committee and Mr. Savage.

First we discussed the matter of allowances for emergency medical aid. Up until that time the allowances were $1 for a house call, 50 cents for an office call, five cents for mileage and $10 for obstetrical cases. We asked that the allowances for initial office and house calls be doubled. We felt that between 60 and 70 percent of all calls would be "first visits" and our experience later proved that to be the case. But our chief request, which we felt would take care of unusual mileage conditions, difficult maternity cases, fractures and all unusual cases, was for a $25 discretionary fee that could, if necessary, be used in any case with the manifestations listed above. It was our idea that many cases could not be covered by a fee schedule and we felt that a discretionary allowance would be the most satisfactory solution of the problem. Also we felt that with a discretionary allowance, each county medical society relief committee would be able to work out its own peculiar problems.

In addition to requesting the discretionary allowance we presented a set of rules and asked that these rules be adopted for the guidance of the relief administration as well as for the guidance of the medical profession. These rules provided that we would provide emergency medical aid under the revised fee schedule for the duration of the emergency, that we would be the sole judges of when the emergency was over, that all county problems pertaining to medical care must be referred to the county medical society relief committees, and that our State Relief Committee would be the court of final appeal in all county disputes. This set of rules, together with the revised fee schedule and the discretionary allowance, was adopted on January 8 and made retroactive to January first.

At first, until the significance of the discretionary allowance began to be appreciated, there was a slight rumble of discontent with the new fee schedule. However, after 30 days of trial, when the doctors realized that more than 60 percent of their calls came under the "first visit" fee and that they could be allowed a reasonable sum for dirt road travel, fractures, abnormal maternity cases, etc., they began to appreciate and coöperate with the new set-up which we had worked out. So far as I know, West Virginia is the only state in the Union with a discretionary allowance and we all feel that it is working out splendidly.

With the state-wide machinery that was created by this Association, we have been able to control practically all of the emergency medical aid rendered under the Unemployment Relief Administration. Here is how the plan works out. We will assume that Dr. Blank of Nicholas county is called out in the country to set a fracture. He has to

travel 10 miles over a mud road. The fracture is a simple one, yet it requires a full hour of his time. For this visit Dr. Blank would ordinarily get two dollars for the visit and one dollar extra for mileage. But this is not an ordinary professional visit. So Dr. Blank sends in his bill for $15 for setting the fracture and $5 for mileage, a total of $20. If by some chance his county relief administrator should refuse to pay his bill in full, he appeals to his county medical society relief committee. At the end of the month, when the county medical society committee meets with the county administrator, this matter is brought up. If it is then not satisfactorily adjusted, it is referred to our state committee. We then take the matter up with the state officials here and they accept our recommendation as final.

I dare say that not more than a dozen cases have been referred to our state committee, which speaks well for the work of the county medical society committees. Every case that has been referred to our state committee has been satisfactorily adjusted and our recommendations followed to the letter. The coöperation we have received from the state administration has been of the very finest and I am sure that this same condition prevails in most of the county set-ups.

I am sorry to say that there has been some evidence of padding in doctor's bills, although not much. All of this has been done through the medium of charging for drugs and not for services rendered. Some bills have been referred to us wherein the attending physician has charged one dollar per day for five consecutive days for house calls, and four dollars per day for drugs. As a result we recently set up the rule that all drug bills would have to be itemized before payment could be secured, and that special permission must be secured in advance before the administration of expensive drugs. I have already stated that there have not been more than a dozen such bills in the entire state, so padding is at an absolute minimum.

Perhaps the doctors who made these unusual charges for drugs thought that their bills were going to be handled by the Workman's Compensation Department, and anticipated a cut.

That covers the history and scope of our work. In closing, we would like to urge the closest coöperation of every doctor in the state in carrying out this form of state medicine. It is state medicine, of course, and only by controlling it will we be able to keep it from controlling us. We can continue to control this emergency aid if we continue to stick together, to treat the situation fairly and honestly as we have done in the past, and stand 100 percent with and for the principles that are laid down by the West Virginia State Medical Association.

Respectfully submitted,
B. H. SWINT, *Chairman.*

DISTRICT MEMBERSHIP REPORTS

1st District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Brooke	5	13	5	2
Hancock	16	17	3	2
Marion	35	54	22	2
Marshall	11	18	8	4
Ohio	75	87	26	7
Taylor	6	6	1	2
Tyler-Wetzel	12	10	4	3
TOTAL	160	205	69	22

2nd District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Barbour - Randolph - Tucker.	30	30	0	0
Eastern Panhandle	25	24	4	1
Grant - Hardy - Hampshire - Mineral	29	28	0	0
Monongalia	37	42	11	2
Preston	14	16	6	1
TOTAL	135	140	21	5

3rd District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Harrison	66	74	7	0
Doddridge	3	3	0	0
Lewis	18	19	3	0
Central W. Va.	17	21	4	0
TOTAL	104	117	14	0

4th District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Cabell	63	83	21	5
Parkersburg	46	64	22	0
Mason	5	6	0	0
TOTAL	114	153	43	5

5th District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Logan	33	33	2	5
Mercer	37	35	13	17
McDowell	41	48	12	5
Mingo	10	18	8	1
Summers	13	12	2	2
Wyoming	5	10	2	0
TOTAL	139	156	39	30

6th District

Society	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
Fayette	30	40	14	3
Greenbrier	21	28	4	2
Kanawha	118	137	21	0
Raleigh	31	48	12	0
TOTAL	200	253	51	5

All Districts

Districts	Members 1933	Members 1934	Delinquents 1933	Delinquents 1934
First	160	205	69	22
Second	135	140	21	5
Third	104	117	14	0
Fourth	114	153	43	5
Fifth	139	156	39	30
Sixth	200	253	51	5
TOTAL	852	1024	237	67

COMMITTEE ON PRESIDENT'S ADDRESS

We, the committee appointed to report on the address of our distinguished President, Dr. Roy Ben Miller, wish to recognize and pay tribute to the splendid and impressive message which he presented to the Association tonight. We wish to wholeheartedly commend Dr. Miller for the stand which he has taken on the various problems confronting our profession and we request, with the acceptance of this report that the Association go on record as endorsing those matters which were presented thus by Dr. Miller.

Respectfully submitted,
FRANK V. LANGFITT, *Chairman.*

GENERAL NEWS

THE A.M.A. MEETING

Highlights of the recent annual meeting of the American Medical Association in Cleveland included the election of Dr. James S. McLester, University of Alabama, as President-elect, and the registration of 6,293 physicians, the third largest registration in the history of the A.M.A. West Virginia, though one of the smaller states, ranked twelfth in registration by states with 84 members in attendance.

One of the outstanding features of the meeting was the adoption by the House of Delegates of resolutions concerning the principles that are to guide the medical profession in its consideration of new forms of medical practice. Another resolution expressed the unanimous belief of the House of Deelgates that only the American Medical Association is entitled to voice the opinion of organized medicine on these topics.

The complete report of the meetings of the House of Delegates has not yet been released by the American Medical Association. This report, which will appear in full in the A.M.A. Journal, will be abstracted and will appear in the August issue of the JOURNAL.

MEDICAL COLLEGE OF VIRGINIA

Commencement exercises closing the ninety-sixth session of the Medical College of Virginia were held Tuesday, May 29, 1934.

This year there were 93 graduates in medicine, 26 in dentistry, 25 in pharmacy, and 39 in nursing, a total of 183 graduates. These represented 11 states, 2 foreign countries, and 59 of the counties of Virginia. Dr. Hans Kleinmann, lately of the University of Berlin, joined the faculty of the Medical College of Virginia, June 1, 1934, as associate in pathology. Doctor Kleinmann's appointment at the college for special research work was made possible by a grant from the Rockefeller Foundation and the Emergency Committee of New York in Aid of Displaced Foreign Scholars. Doctor Kleinmann holds the degrees of Doctor of Philosophy and Doctor of Medicine from the University of Berlin. Although but thirty-nine years of age he has published an unusually long list of articles and books in his special field.

NEW DOCTORS LICENSED

Eleven doctors were granted license to practice in West Virginia as a result of the recent examinations held by the Public Health Council. Four of these took and passed the state medical examinations. They were: W. L. Booher, Wellsburg; Beech L. Smith, Huntington; S. Elizabeth McFetridge, Shepherdstown; Michael Raab, Easton, Pa.

Seven physicians were licensed by reciprocity. They were: E. E. Myers, Philippi; D. C. Ashton, Beckley; James W. Frazier, Charleston; Rodolph H. Fowlkes, Maybeury; Philip Jaisohn, Charleston; A. H. Bracey, Welch; F. W. Light, Jr., Clarksburg.

The next meeting of the Public Health Council will be held in Wheeling, July 9, 10 and 11. Those desiring license, either by examination or reciprocity, should file their application with Dr. A. E. McClue, state health commissioner, who is secretary of the Public Health Council. Dr. Arthur E. McClue, state health commissioner, also announced that 409 midwife licenses have been issued to date this year. Of this number 56 were new licenses and 353 were renewals.

This is an increase over the number of licenses issued at this time last year and indicates that a larger number of such licenses will be issued this year than for some time. Economic conditions are thought by Dr. McClue to be responsible for the increase in the employment of midwives, many families being unable to afford the services of a physician. However, he stated that the class of midwives has improved since the passage of the law in 1925 under which a midwife is only licensed on the recommendation of a local physician who can vouch for her ability, cleanliness and physical condition. Midwives may officiate only where the birth is a normal one. In case any complications arise a doctor must be called at once.

A marked increase in the number of midwives applying for license has been noted during the economic depression. In 1931 the State Health Department granted license to 397 midwives while in 1932 there were 429 and in 1933 a total of 518. A fee of one dollar is charged those who qualify for license.

However West Virginia has a very small percentage of births attended by midwives as compared with many other states. In 1933 of the 36,474 births reported to the State Health Department, 31,997 were attended by physicians, 3,705 by midwives and 772 by members of the family and others.

In counties having full-time health departments, all licensed midwives are supervised by the public health nurse or doctor and their equipment inspected monthly. A careful check is also maintained to see that they follow the state law requiring a solution of silver nitrate to be placed in the eyes of each newborn baby. This solution is manufactured at the State Hygienic Laboratory and distributed free to doctors and midwives.

INCOME OF PHYSICIANS

The Department of Commerce at Washington has recently released a report to the United States Senate on national income for 1929-1932. In preparing this report, several thousand questionnaires were sent out to physicians and surgeons throughout the United States for anonymous return. Thus a fair sample of data was collected upon which to estimate the total income from practice in the medical profession.

The average net income from practice for the years 1929 through 1932 is shown below; the result of the survey by questionnaire.

1929	$5,602
1930	5,307
1931	4,544
1932	3,442

The Department of Commerce is preparing a new report for 1933 on medical income, which will be released this fall.

LIABILITY OF PHYSICIAN

The plaintiff's infant son, injured by a truck belonging to the Nassif Candy Company, was treated by the defendants, physicians employed by the father. Later the father, as guardian for his child, effected a compromise settlement with the candy company and released it from further liability. In this action, as guardian for the injured child, he sued the physicians for alleged damages attributed by him to their negligent and unskilful treatment of the child. In the trial court, the defendants contended that the release executed to the candy company released and discharged them from all liability for negligence charged against them. The trial court certified the case to the Supreme Court of Appeals of West Virginia.

The specific question for determination, said the

Supreme Court of Appeals, is whether or not the release of one whose negligence causes physical injury to a person releases from liability a physician, chosen with due care by the injured person or by one acting for him, whose negligent treatment aggravates the original injury. The almost universal rule, said the court, is as follows:

"It is a general rule that if an injured person uses ordinary care in selecting a physician . . . the law regards an injury resulting from mistakes of the physician or his want of skill, or a failure of the means employed to effect a cure, as a part of the immediate and direct damages which naturally flow from the original injury."—8 Ruling Case Law, p. 449.

The law holds the person who caused the original injury liable for such damages as flow from the negligence of the attending physician, since but for that injury there would have been no such negligence. The original injury is the proximate cause of the damages due to malpractice. The original *tort feasor* being liable for the full consequences of the injury, it follows that a settlement with him which releases him from all further liability operates as an acquittance of the whole matter.

The plaintiff contended, however, that the candy company and the defendants were joint *tort feasors* and that therefore, under section 55-7-12, Code of 1931, a release of the candy company does not inure to the benefit of the defendants, the section reading:

A release to . . . . *tort feasors* shall not inure to the benefit of another . . . . *tort feasor*, and shall be no bar to an action or suit against such other . . . . *tort feasor*, for the same cause of action to which the release . . . . relates.

While the section referred to does not use the term joint *tort feasor*, said the court, the section was intended to apply to all joint wrongdoers. But, said the Supreme Court of Appeals, the authorities make it clear that under the circumstances existing in this case the relationship of joint *tort feasors* does not exist.—Staehlin v. Hochdoerfer (Mo. Sup.) 235 S. W. 1060; Fisher v. Milwaukee Electric Ry. & Light Co., 173 Wis. 57, 180 N. W. 269; Phillips v. Werndorff (Iowa), 243 N. W. 525. The judgment of the trial court against the plaintiff was affirmed.—Mier v. Yoho et al. (W. Va.), 171 W. E. 535.—*J.A.M.A., June 23, 1934.*

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WOMAN'S AUXILIARY

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society held its last meeting until fall at "Glenburnie", the summer home of Dr. and Mrs. J. B. Clinton. Seventeen members of the Auxiliary were present with twenty of their children as guests.

Mrs. A. H. Stevens, President, presided during the business session. Mrs. E. P. Smith and Mrs. H. V. Thomas gave informal reports of the State Auxiliary meeting held at Huntington in May. After a few details of business were attended to it was decided to adjourn until the last Tuesday in September.

A picnic supper was served at the conclusion of the day to the members and their guests who ranged in years from 3 to 15.

BEATRICE GOULD THOMAS,
Corresponding Secretary.

KANAWHA COUNTY

The members of the Auxiliary to the Kanawha County Medical Society entertained with a tea in honor of the incoming officers. The tea was given at the home of Dr. and Mrs. W. P. Black on Friday, May 25, from 4 to 6 p. m. In addition to the members of the Auxiliary, invitations were extended to the graduating nurses of the city and the superintendents of nurses.

The home of Mrs. Black was decorated for the occasion with garden flowers, field daisies and white taper candles. Tea was served to seventy-seven guests all of whom regarded the affair as one of the loveliest of the season.

The committee in charge of arrangements was as follows: Mrs. E. V. Jordan, Chairman; Mrs. E. A. Litzinger, Mrs. P. A. Haley, Jr., Mrs. F. A. Clark, Mrs. B. S. Preston, Mrs. R. H. Walker and Mrs. Hugh Robins.

MRS. J. E. RUCKER,
Corresponding Secretary.

McDOWELL COUNTY

The Woman's Auxiliary to the McDowell County Medical Society held a meeting in Welch, W. Va., on June 12, 1934, with nine members and one guest present.

During the business session the delegates to the state meeting gave a very interesting report of their activities in Huntington. Plans were formulated to

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JAMES R. BLOSS, *Editor-in-Chief* . . . . . Huntington

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THE OBSTETRIC APPLICATION OF SURGICAL PROGRESS*

By JAS. R. BLOSS, M. D., F. A. C. S.
Huntington, W. Va.

IT is a signal honor to be requested by our president to deliver the oration in surgery. It is not frequent for a member of the association to have the unusual experience of delivering the orations both in medicine and in surgery. Some twenty years ago the oration in medicine fell to my lot. That was a classic in that it was delivered in less than five minutes. Possibly this one may not be quite so classical.

This honor of today is particularly appreciated because while our president is one of the prominent surgeons of the state, he has asked that the address this year should deal with obstetric problems. In making this specific request he has very definitely called the attention of the profession to a special field of surgery, the importance of which is not appreciated as it would seem it should be.

When the essayist began the study of medicine more than thirty years ago, obstetrics occupied a somewhat anomalous position in the scheme of the medical curriculum. At that time it was regarded rather as a stepchild of both medicine and surgery. Even then, however, in most medical schools the professors of abdominal surgery and gynecology were the teachers of obstetrics also.

The attitude of the medical mind at that time did not warrant considering obstetrics as being a division of surgery. Then, as is too frequently true at the present time, I am sorry to say, it was felt that a young physician recently graduated was fully competent to assume the responsibility of a confinement, yet not sufficiently well trained for the performance of surgical operations of major importance and scope. In the past twenty-five years a marked change in this respect has come about. The teachers of obstetrics feel today that their subject is definitely a division of surgery. It is recognized that even a normal delivery is a situation demanding the most rigid of surgical technique if the best end-results are to be obtained for both the mother and child. The American College of Surgeons recognizes this also and considers obstetrics as a department of surgery.

In surgery vast strides have been made in the matter of improving the technique of operative procedures; various instruments; methods of attaining a more perfect asepsis

*Oration in Surgery. Read before the West Virginia State Medical Association at Huntington on May 15, 1934.

and so on. We might proceed at great length along such a line of thoughtful discussion. It is our purpose, however, to call attention to but a few of surgery's advances and apply them to the subject under consideration.

In my student days the teachers of surgery dealt largely with the subjects of surgical anatomy and the methods of performing the various operations considered during the course of our instruction. But little was taught concerning the question of preoperative study and especially preoperative preparation of the patient for such surgical treatment as might be determined upon.

To me one of the most fascinating of observations is to watch the present day care which a truly competent surgeon gives to a thorough study of his patients and the time he devotes to preparing them carefully for the subsequent operative undertakings. This study and preparation is the result of surgery's progress during the past quarter of a century. Today no surgeon of ability would think of neglecting these preoperative investigations and preparations. Present day surgical statistics impress upon us the value of these studies.

Those of us who are endeavoring to advance in the particular field of surgery known as obstetrics have also progressed much in this same period of time. We, too, have found that the end-results are rendered far more satisfactory if we also give this careful study before the period of our patient's delivery. It is impressed upon us that prenatal care is of the greatest importance, not only that we may render to the mother the highest type of service but that we may do much to assure to the child every opportunity for a normal development, both prenatal and postnatal.

The prospective mother of today is advised to consult a competent physician immediately after the missing of a menstrual period. That is as soon as pregnancy is suspected. In our opinion a careful investigation of previous illnesses and the family history is important because of the bearing which this may have upon the course of the pregnancy. At this time also, a painstakingly thorough physical examination is of paramount importance. This should include all of the patient from teeth and tonsils and ears to varicose veins of the legs and even flat-foot. This last may have an importance undreamed of before the completion of our service to the patient. It seems to stand out glaringly that the very great importance of a careful physical examination is neither realized nor appreciated even now by the great majority of our profession who render obstetric service. The results are not perfect in all cases no matter how great our effort to make them uniformly so. This does not in any manner justify a neglect of anything which may assist in making the outcome more satisfactory or which adds to the safety of the mother or her infant.

There are some diagnostic studies which should be especially emphasized as being of prime importance. We should have a Wassermann test made at the earliest possible moment. A study of the basal metabolism should also be made promptly. If a positive blood examination is reported, and is verified by rechecking, we have found that continuous intensive antiluetic treatment of the mother assures a high per cent of non-luetic offspring. Personal studies covering a period of some six years convince me that an investigation of the thyroid and other endocrine functions as revealed by metabolic readings are of the utmost importance if we are to render the best of service. These investigations have revealed some extremely interesting observations which may have an important bearing upon the mental and physical development of the child.

We feel that a study of the blood is just as important in obstetrics as in the other branches of surgery. Where indicated the non-protein-nitrogen estimation gives valuable aid, just as does the calcium content report. Certainly a knowledge of the clotting time may guide us in our prenatal and natal

care. It would seem that in certain instances postpartum hemorrhage might be avoided if these matters are given thoughtful prenatal consideration.

Having made a careful and thoroughly complete examination of our obstetric patient it is not sufficient that we now dismiss her until the onset of labor. It is necessary in this field of surgery for us to continue a close supervision during the whole prenatal period. Many things may occur from a clear sky and when we least anticipate them. These patients should be seen every two weeks until six or seven weeks before delivery is estimated and then each week. A careful check must be kept upon the urine, the blood pressure and weight increase if we are to be content.

In recent years studies directed to the diet and hygiene of pregnancy have revealed matters of undreamed importance in this field. The progress has been great and it has been proven that these are to be given the most careful attention during the prenatal period if we are to secure the best development of the child and are to have the mother in the most satisfactory condition for the severe physical ordeal of delivery and to be best prepared for the convalescence of the postnatal period and for the care and feeding of her child.

Another marked advance in the care during the prenatal period is in the methods developed for the handling of the toxemias of pregnancy; that is of pernicious vomiting and the preeclamptic symptoms. Much credit must be given to Titus of Pittsburgh for his valuable studies and recommendations in this particular field. The use of glucose intravenously and, in certain instances, of magnesium sulphate by the same route, has almost entirely done away with induced abortion as a therapeutic procedure in the treatment of these complications of pregnancy.

The proof of the importance of prenatal care is the diminution of the disasters due to these toxemias. Eclampsia becomes rare where adequate prenatal supervision is given. The same applies to abortions, miscarriages, premature births, premature death of the fetus and so on. The prevention of congenital lues has been mentioned previously.

At once it becomes apparent to us as surgeons that obstetric prenatal care is but the preoperative study and checking up of other divisions of surgical endeavor. The only difference is that the period of observation covers eight or more months. Not for a moment is it safe for us to relax our vigilance.

When we come to consider the advances made in the technique of the deliveries it is self-evident that the greatest one has been an appreciation of the importance of asepsis. In such surgical undertakings as version, the use of forceps for delivery and so on, we cannot but admit that the skill of those masters of the years gone before was great indeed. It may be doubted if today it is surpassed by many or even equalled by the majority of those rendering service in this field. As one looks back he cannot but remember the lack of an aseptic conscience of three decades ago. Possibly it was not a lack of conscience so much as an ignorance of asepsis. Even abdominal surgery was usually done without the refinement of sterile gloves by the majority of the surgeons of that period. Older physicians will recall the heated arguments pro and con as to the advisability of using gloves. Dependence was placed in the use of antiseptics instead. Small wonder that in such a commonplace event as childbirth, scant attention was given to making an attempt to be surgically clean at the beginning of a delivery and practically none toward maintaining an unbroken technique throughout it.

How changed is the picture of today! Now every effort is made to secure asepsis and then to maintain it. Where this is appreciated and carried out the number of patients developing infection postpartum is markedly reduced. It may be said that this asepsis is not to be attained in home obstetric service but only in the delivery room of hospitals. We can only voice our own conviction that it

is possible in the home. All depends upon the will to do surgically clean obstetric work. Joseph Price did all manner of surgery in the most humble of homes with an ironing board for an operating table but he was clean surgically. This has been one of the greatest advances made in recent years of the obstetric application of surgery's progress.

The changed attitude of men engaged in obstetric practice toward delivery by abdominal section is interesting. We have watched this through the years. Twenty-five years ago a section was made only as a last resort. In the majority of instances the outcome was hopeless from the first. Today the picture has changed and we find an increasingly larger number of such deliveries are made each year.

This change in opinion has been brought about by a number of factors. First probably is that the technique of the operation has been improved in many respects. Today we have obstetricians divided largely into two groups, so far as the type of operation is concerned; namely those preferring the so-called classical operation and the other advocating the low or extra-peritoneal method. One cannot but wonder if the good results reported by each group are due not so much to the type of operation as to the perfection of aseptic technique and improved methods of securing accurate closure of the uterine incision. We find equally competent operators and honest reporters giving satisfactory statistics with each.

The next factor in this change of opinion is the result of the increased attention devoted to prenatal care. Where this is given careful consideration, many abnormalities, either congenital or acquired, will be discovered which forewarn that a normal delivery with a living child will probably be impossible or that the child will more than likely be seriously injured and the mother possibly irreparably so if a vaginal delivery is attempted. So it may be the improvement in recent abdominal section statistics is due to a more prompt realization that a vaginal delivery will be impossible or catastrophic in its outcome and the section is made before the patient becomes a poor risk for any surgical undertaking.

We cannot but bring to mention the changed attitude in recent years toward the immediate repair of all lacerations of the soft tissues of the birth canal and the repairing of previous injuries at the time of a subsequent delivery. This last is aptly termed by Bubis of Cleveland "puerpural gynecology". The experience of obstetricians who have given thought to these procedures and who have tried them has proven this method to be feasible, safe and the end-results good. This has been, to my mind, one of the outstanding advances made in this field of surgery.

Of late we have read in both lay and medical periodicals many articles of a terrifying tone concerning the high maternal mortality of pregnancy in the United States. Recently some nationally known physicians have called attention to statistical digests which tend to show that the dangers are greater in hospital than in home deliveries. Time does not permit of a discussion of the various aspects of this study.

We are presented with a maternal mortality rate per one thousand live births varying from 6.2 to 6.7. This roughly is from .6 to .7 of one per cent. It is rather to be doubted if one thousand interval appendectomies would, in any hospital of the country, make a much better statistical showing. This would be patricularly true if the standard of training and the requirements of the abdominal surgeons were of the same type as that pertaining to the great majority of those doing the bulk of the obstetric work. It must not be forgotten either that the great proportion of deliveries are still made in the homes. There are several angles to statistical studies and each man proves his contention from his own viewpoint.

The sad part of the obstetric mortality is the fact that at least two-thirds of it is due to infection, postpartum hemorrhage and

toxemia. All of these are very largely preventable by a careful application of the principles of surgical technique. Much yet remains for us to accomplish in the matter of educating the laity, and physicians as well, but more especially careless minded patients, to an appreciation of the fact that a delivery is a surgical operation, that it must be so regarded and that the same careful preparation and technique, preoperative, operative and postoperative, should be carried out in each instance.

In no particular has surgery shown greater advance than in the postoperative care of patients. Here obstetricians have advanced too, but not in the same ratio as in the other departments of the surgical field of the healing art. All women will need care and treatment postnatally; some more than others undoubtedly.

If these patients are examined carefully and routinely it will be found that in practically all a certain amount of cervical trauma has resulted from the dilatation with the subsequent expulsion of the infant during the second stage. It will be found also that five or six weeks postpartum the process of involution is not complete and that the ligamentous supports of the uterus do not prevent a certain amount of prolapse and that in the majority of instances a marked tendency to retroversion is noted. These conditions are more readily determined if the examination is made with the patient standing.

This condition can be markedly improved and a return to the normal more rapidly secured by well-directed postnatal treatment. Those surgeons giving thought and painstaking attention to this matter are firmly of the opinion that by these methods many patients will, in the years to come be spared the development of cervical carcinoma and that subsequent operative undertakings for the correction of displacements, varicosities of the veins of the broad ligaments and so on will be minimized.

Personally the most satisfactory method of treating these patients is with a special type of tampon which is elastic in its construction. This supports the uterus, thus improving the pelvic circulation and in this way hastens the completion of the process of involution. The abrasions about the external os are treated with topical applications of silver nitrate in solution, the use of the actual cautery or the coagulating current as the particular case may indicate. Experience has proven that adequate postnatal care covers an approximate period of twelve to fourteen weeks postpartum. The results obtained amply reward one for the time spent in this particular division of our obstetric service.

In closing we may recapitulate:

First: The advances made in obstetrics have been equally as great as in the other branches of surgery.

Second: These advances are particularly in the realms of prenatal and postnatal care.

Third: A marked change has taken place in the manner of handling the repair of injuries to the soft tissues of the birth canal.

Fourth: The operative technique of abdominal section has been markedly improved and the importance of early section to avoid preoperative exhaustion with its attendant disastrous postoperative sequelæ has been proven.

Fifth: The supreme necessity for asepsis in all obstetric procedures has been realized and every effort is now exerted to have the technique of this field of surgery as perfect as in any other.

Sixth: Much yet remains to be accomplished in the education of the layman as to the supreme importance of the highest type of service in this field and of the physician that he shall be prepared to give this service.

BEDBUG FUMIGATION

Fumigation is the only really sound method of freeing a house from bedbugs, according to Dr. Claude Lillingston who writes on "The Budbug" in the July *Hygeia* as the second article of his serial, "Our Parasites."

THE MECHANISM AND TREATMENT OF THE NEUROSES*

By IRVING J. SPEAR, M. D.
Baltimore, Maryland

THE feeling of discomfort, of impending danger, or difficulty of normal adjustment very frequently occurs in the early stages and throughout the course of many types of illness. The duty of the physician whose advice is sought is to uncover the underlying cause or causes of the symptoms complained of, or of such symptoms and signs as may be observed during the course of the interview or upon examination.

The average physician or surgeon having very much more experience in the observation, examination and treatment of illness dependent upon disturbance of the function of organs or structures of the body than in the observation and treatment of the disturbance of function dependent upon pathological states, either functional or organic, of the nervous system, is prepared and qualified by both experience and training to solve the problem and outline a proper course of treatment.

It is a fact well known to all of you that the details of the various specialties in medicine are now very extensive and the solutions of some of the problems dependent upon intricate, very special and difficult procedures, examinations and investigations. From a practical standpoint, fortunately, this often is not the true picture. Most of the problems which we have to face are not excessively difficult; they do not occasion much difficulty to the physician who takes a careful history, makes a thorough examination, and either does or has done a few of the usual laboratory tests, the examination of urine, the blood, the sputum, the stomach contents, the spinal fluid and the necessary x-ray investigations. It is only the unusual case in medicine or surgery that cannot be so easily investigated and solved.

Neurological, psychiatric and neuropsychiatric manifestations as a proper cause of the patient's complaints occur in a comparatively small percentage of the physician's usual practice. This does not mean that such complaints do not occur in individuals who are affected with diseased states of the various organs or structures of the body. Careful examination of these latter conditions should reveal the underlying physical or surgical defect, the clearing up of which should be followed by a disappearance or at least amelioration of the symptoms.

It is just here that one must be careful not to make a rather serious mistake, for it is perfectly possible for an individual to have a long-continued disease of his nervous system, functional or organic, in whom there occurs an acute illness, and great disappointment will occur if one expects with the clearing up of the acute illness, the disappearance of the symptoms attributed to disturbance (functional or organic) of the nervous system.

Frequently in disease of the nervous system, the prominent complaint is referred to some organ or system of the body, such as the heart or the cardio-circulatory system, the stomach or the gastrointestinal system, the kidneys or the genitourinary system, the eyes, the ears, skin, and so forth; and here again the attending physician must be most carefully on his guard. I have seen, and I know of many patients treated for many years for heart trouble, stomach trouble, skin trouble, kidney trouble, etc., who have organs that function perfectly. I make these preliminary remarks to call to your attention a most important factor that enters into the treatment of not only the functional diseases of the nervous system, but of all diseases, whether it is disease of the nervous system,

*Read before the Tri-State Medical Society, Huntington, W. Va., January 18, 1934.

gastrointestinal, cardio-circulatory, etc., and that is a well considered diagnosis.

The affections of the nervous system may be divided into the following groups: (1) The organic diseases: Those diseases in which the symptoms can be very definitely referred to visible changes, macroscopic or microscopic, in the structures of the nervous system which may be either local or general. In this group belong the apoplexies, tumors, circulatory disturbances, the inflammatory and degenerative diseases of the brain and cord, injuries, toxemias, etc. (2) The functional diseases: Those diseases in which a most careful examination of the nervous system fails to reveal any visible, either macroscopic or microscopic, changes in the nervous elements. In these cases, we attribute the symptoms to a disturbance of the function or pathological interaction of the elements of the nervous system.

When this classification is taken into consideration, one is justified in arriving at the following conclusions: That in the organic diseases where the cause can be entirely removed, the individual should make a complete recovery. One has, however, to bear in mind this fact—that the cellular constituents of the nervous system, when once destroyed, can never be repaired or replaced, so that even when the causative factor is removed, if during the existence of that causative factor cellular elements have been destroyed, there will always remain residual evidence of that destruction; in the second group of cases, in view of the statement already made, that this group is due to disturbance of function or interaction, it *should* be possible in all of these cases, if the cause can be removed, to bring about a complete recovery.

If all individuals were born with neural elements, of normal inherent vitality, resistance, and capacity for development, then if the cause of the functional neuroses were removed the individual would make a perfect recovery, but, unfortunately, many individuals at birth, or as the result of environment, disease, etc., have neural elements deficient in vitality, incapable of resisting strain, and defective in the capacity for development. It is in this particular group of individuals that even after the removal of the cause, we still have a defective neural mechanism, and consequently they are incapable of regaining powers of complete adjustment, and therefore make a more or less incomplete recovery.

It is when one endeavors to uncover the cause of the neuroses that one has complex problems to face. In these cases, the search for the underlying condition must extend backward many years, often into the ancestry, to discover familial traits, types, characteristics and methods of adjustment; a careful investigation of the environment and the contacts of the individual which are a very prolific source of maladjustment, and of conversion, responsible for the development of symptoms and complaints.

The investigations directed to the environment, associations, habits, conflicts, etc., of the affected individual require not only many interviews with the individual himself, but careful questioning of those with whom he associates, and with whom he comes in contact. There occur a few individuals in whom even the most careful investigation fails to uncover the cause of their conflicts and maladjustment. It is in this very limited group that psychoanalysis, the study of their dreams, and trance-like states brought on by hypnotism or suggestion, will sometimes enable the examining physician to uncover the irritating complex which is responsible for the outward manifestations of the individual's illness.

In order that the physician who is about to treat the affected individual may be perfectly certain of the stand he is about to take, and also in order that he may gain the patient's confidence; for without this there is no possibility of treatment being followed by beneficial results, a most careful, complete, and painstaking physical examination must be undertaken. Every p h y s i c a l abnormality that is uncovered should be carefully weighed, and its relation to the patient's complaints considered. Just because one finds an achylia gastrica, or a hypotension, or a mitral

regurgitation, or an enteroptosis, one is not justified in assuming that that is the causative factor of the patient's complaints. It is not uncommon in individuals affected with a neurosis to find at one examination an achylia gastrica, and at another examination a moderate hyperacidity, nor is it uncommon to find at one time an increase, and at another time a decrease in the amount of urine passed. One has but to read Walter B. Cannon's book on "Bodily Changes in Pain, Hunger, Fear and Rage," to be convinced of the marked disturbances in function of organs as the result of emotional disturbances.

Before taking up the specific treatment of the psycho-neuroses, I wish to separate these from the true psychoses. I realize very well that there is a rather close relationship between the psychoneuroses and the psychoses. There is no difficulty at all in differentiating psychoneuroses from *some* of the psychoses. Proper examination and observation readily differentiate the defect psychoses, such as intellectual defects, the dements, the arteriosclerotic psychoses, etc., from the psychoneuroses. There is often great difficulty in differentiating the mild manic-depressive psychoses, either the exalted or the depressed phases, or the schizophrenic psychoses from psychoneuroses hysteria. At times one may have difficulty in differentiating the paranoid psychoses from the psychoneurosis psychasthenia (the obsession psychoneuroses) but one may, as a general rule, make the statement, that in the psychoses the patient has little, if any, insight as to his condition. He does not take kindly to discussion of the situation, and he is perfectly certain of the fact that he is not ill, and that his symptoms are the evidence of some outward unfriendly influence, be it physical or mental. The psychoneuroses, on the other hand, are always firmly convinced that their symptoms are the evidence of some physical illness, the manifestation of some abnormal or diseased condition of their organs or of the mind. As a rule, with few exceptions, the former group of individuals do not believe themselvse to be ill, but the victims of circumstances, and the latter group believe themselves to be ill as a result of a diseased condition of their organs or of their minds.

The psychoneuroses are usually divided into three groups:

(1) Psychoneurosis neurasthenia — the fatigue or exhaustion neurosis;

(2) Psychoneurosis hysteria—a conversion or defense neurosis;

(3) Psychoneurosis psychasthenia — an obsession and fear neurosis.

Psychoneurosis Neurasthenia: The symptoms of this condition are the manifestations of chronic fatigue. Psychoneurosis neurasthenia is a fatigue neurosis; this may be congenital or acquired. In the congenital psychoneurosis neurasthenia, the individual is born to the world with deficient neural vitality; often there is defective physical development. These individuals are usually thin, have narrow costo-sternal angles, enteroptosis, and lack capacity for continued physical and mental effort. The symptoms of their neurosis usually manifest themselves first in the early adolescent period, remain more or less chronically present unless the necessary adjustments are made, mental and physical activities regulated, and the individual placed upon a proper regime of living. The acquired form of psychoneurosis neurasthenia may develop at almost any period of life. It is the evidence of mental and physical work carried on in an unwise manner and under improper physical conditions, or at a time when the individual is in such a physical condition that he cannot stand prolonged strain or effort, such as after a prolonged illness, or where there are certain physical defects—such as arteriosclerosis, nephritis, etc.

Psychoneurosis Hysteria: A conversion neurosis. The individuals affected with this condition, either as a result of heredity, environment, faulty training, or temperament, or a combination of the above conditions, face situations that are difficult or disagreeable with great reluctance. When the situa-

tion becomes very difficult or very disagreeable, due to lack of courage, especially when they have been exposed to contagion by their environment, (such as the seeing of a parent, or an aunt, or someone else escape their responsibilities by physical symptoms such as headaches, vomiting, giddy spells, etc.) they attempt escape from the situation by the development of physical manifestations such as weakness, restlessness, agitation, crying spells, headaches, disturbance of vision, disturbance of speech, palpitation of the heart, vertigo, loss of sensation either localized or diffuse, weakness or paralysis, localized or general, shaking spells or even convulsions, restlessness with insomnia or stupor, loss of appetite, vomiting, etc. These individuals lack courage to face the realities of life, to stand mental and physical pain due to the fact that they have lived in unfavorable and tainted environment, or that they have not had the benefit of proper training. In other words, their mental hygiene has been definitely bad. They have not the courage to admit defeat or to stand pain. Yet they must, with self-respect, escape the situation, and there is only one way in which they can escape and retain their self-respect, and the respect of those with whom they come in contact, and that is by illness. So that unconsciously they convert their difficulties of adjustment into numerous physical manifestations, which may last a short time or extend over long periods of time.

Psychoneurosis Psychasthenia: An obsession psychoneurosis. This condition is practically always congenital, and is an evidence of tainted neuroplasm, and, unfortunately, the potential psychasthenic is usually exposed to an environment which is certain to bring out his weakness. The condition manifests itself in early life by the various fears. The characteristic symptoms are obsessive fears—fear of dirt, fear of open places, fear of closed places, fear of high places, fear of riding in trains, automobiles or cars, fear of people, fear of disease, fear of sharp objects, fear of certain animals, fear that whatever has been done has not been done correctly. These individuals, when they leave the house, will go back to be sure that the door is locked, again go back; no matter what they do, after the act is completed and they leave, there is a tendency to return frequently to be sure that what has been done has been done correctly. This fear of not having done things right manifests itself not only in the physical but in the mental activities. If they act or think, there is a doubt whether they have done, or thought or said the right thing. The condition is also characterized by persistent disagreeable thoughts which force themselves into consciousness in spite of the individual's efforts.

In these three groups of the psychoneuroses, the individuals all have insight. They permit a calm discussion of their symptoms and complaints and contend that their discomforts are the evidence of illness. They believe themselves to be sick people, and in this way are distinguished from the true psychoses.

TREATMENT

When one understands the mechanisms of the three types of neuroses, the treatment becomes very simple. The psychoneurosis neurasthenia which is a fatigue neurosis, requires rest, good food, diversion, occupations which do not require too great a strain upon the individual physically or mentally.

When one has arrived at the conclusion that the individual's symptoms are the evidence of a congenital neurasthenia, it becomes necessary first to put that individual in as good physical condition as possible by the correction of outstanding physical defects such as diseased tonsils, poorly cared for teeth, defects of vision, diseased conditions of the bones or joints, defective nutrition, etc. The physical defects having been corrected or modified, it then becomes necessary to regulate the entire life of that individual in the future so that he will not be exposed to unnecessary, to undue or to prolonged physical and mental strain. He must be educated to adjust himself, to regulate his life and to

limit his activities in proportion to his capacity.

In the treatment of the acquired psychoneurosis neurasthenia, the problem is much simpler. Here again any physical defects that may be present should be corrected or modified. The individual should have his general physical condition improved. He requires prolonged rest and general building-up measures. It has been my experience that the treatment of the psychoneurosis neurasthenia can be best carried out, or at least the treatment started, in a hospital where the patient's physical activities can be regulated, his diet supervised, the necessary educational and physical measures instituted, to bring about an improvement in the mental and physical states, and this should be continued under the physician's supervision for sometime after the patient leaves the hospital.

Time does not permit me to go into details of a plan which should be carried out at the hospital and with modification at home, but some such plan of regulated rest, diet, physiotherapy, etc., must be instituted if we hope to bring about a more or less lasting improvement.

One must have a clear conception of the mechanism of production of psychoneurosis hysteria before one can hope to achieve success in the treatment of the individual. One must understand that as a result of heredity, environment, association, there occurs a disturbance of development which makes it difficult, if not impossible, to face readily difficult, distasteful, monotonous or dangerous situations. They do not have the courage, the moral stamina, the self-control to carry on in the face of fancied or real difficulties, or to admit their incapacity. They unconsciously evolve means and measures to escape and avoid the real or fancied difficulties and still retain their self-respect and, what is more important, the respect, love and admiration of those whose opinions they value. You must understand that these individuals do not consciously evolve these schemes or consciously plan their avenues of escape. This takes place in the subconscious centers and as a result of this mechanism, there occur unconscious stimuli of the various regions of the brain which give rise to sub jective and objective symptoms; the subjective ones being complaint of pain, such as headache, numbness in various parts of the body, feeling of weakness, nausea, feeling of giddiness, disturbance of vision, disturbance of hearing or even loss of vision or hearing and numerous other subjective complaints; the objective being flushing, perspiration, shaking and trembling, vomiting, paralysis, convulsions, appearance of depression, crying spells, screaming spells, agitation, etc.

When one understands the mechanism of these symptoms, that they are the result of a complex cerebral activity dependent upon submerged emotional discomfort, then one can comprehend the necessary measures which must be instituted to clear up and to remove the likelihood of recurrence.

In the treatment of these individuals, it is very important that the physician who is in charge of the case have an understanding and sympathetic temperament. He must acquire the affected individual's respect and complete confidence. The treatment of these patients is best instituted in a hospital where first a very careful and complete physical examination is to be made. Then the physician must obtain a very careful history by frequent interviews with the patient and, if necessary, with the friends and relatives of the patient to discover what are the underlying disagreeable situations which are causing the difficulty in adjustment. Sometimes the solution is comparatively simple and at others it is extremely difficult. Sometimes the treatment is easily carried out with brilliant results and at other times improvement is obtained only after a long, difficult and painstaking labor. The treatment of some individuals, due to their low intellectual capacity, is practically hopeless. One can relieve them and does relieve them of the acute attacks but one cannot hope, much less expect, to educate them to the responsibility of meeting their problems in a normal way. There is another group who, as a result of

training, environment and temperament, are unwilling to recover. Life is so much easier ill than well that they resist all efforts in education and recovery. But there is still a very large group who are really anxious to acquire permanent emotional control and stability, in a normal way, to meet their responsibilities. It is this group of individuals who will respond to an understanding explanation if once their confidence has been obtained, who will coöperate and as a result of effort, encouragement and persistence eventually exercise normal self-control despite difficult situations.

I advise, in order to save the individual embarrassment, in addition to the reeducational measures employed, there be instituted physical therapy such as massage, hydrotherapy, drugs, etc. It is important however, that the patient understand that these are helpful means toward recovery, but that the real recovery depends entirely upon himself. He must understand that in the future he will have to face numerous difficult problems and when he finds that they are beyond his capacity, he should promptly and honestly ask the necessary sympathy and help.

The treatment of psychoneurosis psychasthenia is difficult, monotonous and discouraging, inasmuch as this condition occurs most often in the neurally tainted, and generally early in life, and is very apt to be persistent in its course. Because of the presence of deeply submerged conflicts or irritants which have originated in the earlier years of life as the result of difficulties in adjustment, accompanied by marked emotional trauma, there occurs a state of mental unrest which forces itself into consciousness as anxiety and fear accompanied by a feeling of helplessness and loss of self-control. In spite of these feelings, the individual has insight, he realizes the uselessness of these fears, anxieties and compulsions, yet he lacks confidence and is in constant agitation dreading the consequence of the loss of self-control.

Treatment of these individuals is very difficult and, in my experience, very discouraging. The basis of their conflict requires prolonged, persistent study of the activities of the submerged consciousness. The analytic method of Freud, the study of dreams or free association method may uncover the psychic trauma which was the original causative factor. From a practical standpoint, these individuals are best treated by regulating and systematizing their physical and occupational activities, encouraging new contacts, building up their general physical condition, establishing regular habits of living, with proper time given to diversion, relaxation and occupation. They must be listened to sympathetically, encouraged and reassured. Eventually many of these individuals develop self-control and attain a reasonable mental and physical peace.

CONCLUSIONS

It is my desire to impress upon you the following facts that must be observed if one expects to attain results in the treatment of individuals affected with the various types of neuroses.

First: Examination must be careful and very complete. The purpose of this is that one does not treat organic diseases as neuroses, or conversely, treat neuroses or their symptomatic manifestations, as one would organic diseases.

Second: The establishing of an emotional tone conducive to recovery. This is accomplished by inspiring confidence and hope in place of mistrust and despair.

Third: Placing the individual in favorable physical surroundings so that treatment can be properly instituted and continued.

Fourth: The physical measures used in the treatment of these conditions are:

A. Diet;

B. Physiotherapy, hydrotherapy, sunlight, massage, electrotherapy, exercise;

C. Occupation;

D. Environment;

E. Psychotherapy; education by explanation, persuasion, and appealing to the better instincts, the reestablishment of self-confidence and the bringing about of the adjustment;

F. Be sure you are right and then go ahead.

CANCER OF THE BREAST*

By R. J. WILKINSON, M. D.
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IT was not until about 1895 that Halstead of Hopkins and Willie Meyer of New York working independently devised an operation for the radical cure of carcinoma of the breast, that this subject became one of special interest to both the physician and the public. Their work clearly demonstrated that the condition was curable when operated upon early and since then untold thousands of lives have been saved. Years later Broders of the Mayo Clinic brought forth his classification of malignancies and this, very obviously, has been of assistance in determining the prognosis and whether or not therapy is indicated. Later Handley, of England, called attention to the lymphatic channels that drain the breast and this fact brought instantly to our minds the avenues by which carcinoma cells metastasize. With this knowledge operations were designed accordingly; that is, the extent of dissection was made to conform somewhat to the location of the lesion. Also, this observation has been of tremendous help to the radiologist for by directing the x-ray or radium treatment to these particular regions much better results are being obtained. The literature is far too voluminous for me even to attempt a complete abstract. However, a few references will in a measure bring to your minds the general trend of the profession in dealing with this subject.

The largest and most detailed statistical study has been by Harrington[1], of the Mayo Clinic, who reports a series of 2879 cases, dating from 1910 to 1927 inclusive. He calls attention to the fact that growths of this character are seen twice as frequently in the outer and upper aspects of the breast. He further states that 80% of the cases showed fixation of the skin in varying degrees. He classes these patients according to the malignancy as follows:

2.9%	of	Grade	I
12.2%	"	"	II
33.6%	"	"	III
51.3%	"	"	IV

Of this series he noted lymphatic involvement present in:

14.3%	of	Grade	I
48.1%	"	"	II
76.6%	"	"	III
88.6%	"	"	IV

These figures clearly show that the greater the malignancy the earlier we can expect lymphatic involvement.

Continuing this statistical study it is of interest to note what effect the different grades can have on the 10-year life expectancy:

80%	of	Grade	I	)
38%	"	"	II	)Lived 10 Years.
10.3%	"	"	III	)
11.3%	"	"	IV	)

In discussing treatment he makes the interesting statement that the instance of mortality was increased in grades three and four by 4.8% after x-ray but that in lower grades where the cells are less radi-sensitive, the mortality was increased 2%. This should be remembered, because we are prone to advise all malignant cases to have either radium or x-ray regardless of the expense, and in many instances unmindful of the results. Finally, his report calls attention to the fact that 52.9 of patients without lymphatic involvement have survived the ten-year period. These observations are largely concurred in by many leading surgeons throughout this country as Burton[2], Lynch[3], Baumgardner[4], Buchanan[5], Jno. Frazier[6], Frank Matthews[7], Greenough[8], and Clapton[9].

*Read before the Cabell County Medical Society at Huntington on March 8, 1934.

Coughlin[10], St. Louis, in reporting a series of cases calls attention to the report of the British Cancer Commission in which the average life without operation is only 3.25 years.

Daland[11] reporting 100 untreated cases for the Harvard Cancer Commission shows 40% lived three years; 22% five years; 9% seven years, and 5% survived the 10-year period.

Fitzwilliams[12], London, concluded after treating 250 cases with radium that surgery is unnecessary since equally as good results can be obtained by this treatment. His report is incomplete in that no statistics are given to substantiate this statement. The same can be said of Finney's[13] report of 950 cases operated upon at Hopkins. He states that 26% are alive varying from five to thirty years. Frank Matthews[14], of St. Luke's in New York has the most optimistic report in that 64.4% of lymphatic involved cases are alive after five years and 23.9% after ten years. He states that the x-ray does not influence the instance of 10-year life expectancy. Willie Meyer[15] in a recent paper before the Clinical Congress of Surgeons joins others in the plea for early surgery if the life expectancy is to be increased. He briefly discusses some late ideas relative to cancer cell growth and expresses the hope that by increasing the body acidity we may be able to prevent or at least retard cell proliferation. Pfahler[16] and Perry on the other hand are most optimistic relative to the preoperative and postoperative treatment. They contend that by irradiation, 46% with gland involvement survive the 5-year period and that 38% of inoperable cases were made operable with 10% living beyond five years.

In summarizing the literature one can conclude that a great majority of our leading clinics, here and abroad, agree that early operation offers the best results and that in the more malignant growths radium and x-ray treatment exert a tremendous influence on prolonging life and in some instances may actually be curative. This statement is borne out by Trout and Peterson[17] of Roanoke, who mailed questionnaires to 199 radiologists and 148 surgeons relative to the value of irradiation in breast carcinoma. Ninety-one percent of the radiologists and eighty-nine percent of the surgeons replied in the affirmative.

Flothow[18], of the Mayo Clinic, in discussing the body defensive factors in carcinoma agrees with McCarthy that a fairly accurate prognosis can be determined by the presence of fibrosis, hyalinization and lymphatic infiltration. With these factors present the patient's chance of living is greatly increased but, regardless of the type, if they are absent the opposite results can be anticipated.

My series of 79 breast tumors seen during the past five years is far too small and the follow-up too incomplete to be of statistical value. However, a few of these cases presented interesting problems and a brief review will emphasize the points I wish to stress.

1. Mrs. B., first seen December, 1929. History of tender, movable lump in breast in April, 1928, which soon disappeared. She was examined by a physician who prescribed belladonna ointment and this apparently effected a cure. In December, 1929, she again noticed a lump in same breast. Examination at this time revealed a hard lump, the size of a marble, right breast, upper and outer quadrant; no axillary glands involved. Operation advised. December 10, 1929, section was removed locally for pathological study. Diagnosis: Scirrhous carcinoma, Type II. Radical operation December 13, 1929. Given deep therapy. Evidence of recurrence within a few months. Patient died, general metastasis, eighteen months later.

2. Mrs. T., first seen March 4, 1929. History of first noticing lump in left breast four months prior to admission. Painful when reaching up. Examination: small lump, hard and movable, outer and upper aspects left breast. Sent to hospital for local removal and pathological study. Diagnosis: Scirrhous carcinoma, Type II. Radical operation two days later. Early evidence of recurrence and

death within sixteen months. She was also given deep x-ray therapy. These two cases emphasize the danger of removing sections for microscopic study unless prepared for frozen tissue study and an immediate radical operation if malignancy is found. Many leading authorities agree that the chance for a cure is greatly reduced in every type of malignancy where sections are taken and a few days elapse before the complete operation is performed. Of course, it may be a mere coincidence that these two patients showed early evidence of recurrence and metastasis. But in view of the fact that many other patients with the same type of growths have remained well for some years it is at least another link in the chain of evidence against removing sections for study by this method. If a competent pathologist is not available it is far safer to do an unnecessary radical operation if malignancy is suspected, for after all the operative mortality is nil in the hands of skilled operators. I do not believe that a surgeon can diagnose with any degree of accuracy a unilateral growth of the breast, and every time he assumes to do this he is running the chance of depriving the patient of the only hope for a cure. The following cases tend to bear out this statement:

3. Mrs. S., seen November 17, 1933. History of painful breast for about one year, with slight generalized enlargement. No discrete masses made out. This breast was painful during the time she nursed her baby eight years ago. A tentative diagnosis of mastitis was made but in view of our recent experience we advised frozen section. Diagnosis: Duct cell carcinoma, Grade I with fibrous mastitis. With this diagnosis it was only necessary to remove the gland. This patient was advised not to have radium or x-ray therapy. The other case, Mrs. G., white, age 42, seen June 30, 1933, with pain in right breast extending to neck. Examination revealed large woman with heavy breasts. Some induration which was diffuse on right side. In view of the pain and the fact that the gland showed symmetrical enlargement, a diagnosis of mastitis was made and she was advised to support the breast. On August 14, she was still complaining and at this time a questionable mass was made out in the lower portion

Illustration showing type of operation and free arm motion.

of the gland. Operation was advised. Entire mass removed, frozen section not done. Pathological report: Cystic mastitis with early malignant changes taking place. There has been a prevailing opinion that mastitis never becomes malignant and that pain is only experienced very late in malignancies. If those ideas had been followed, the lives of these two patients would certainly have been in jeopardy to say the least.

Of the 79 breast tumors seen during the past five years, 39 or 49% have been operated upon. Twenty-two or 56% of this number were malignant. Three patients were classed as inoperable as regards cure, due to metastasis being present. Four are dead from carcinoma and three others will probably not survive the five-year period due to recurrence. The follow-up records are incomplete in that a few of these patients have moved and their addresses are unknown, therefore, their present status is in doubt. It is encouraging, however, to note that women are becoming educated to the dangers of malignancy and are seeking advice early. Five years ago most of the cases had frank cancer when first seen. Today 75% of the women with questionable breasts have benign lesions. There is still a need for educational work and I am firmly convinced the responsibility for this activity belongs to the medical profession.

In conclusion may I say just a word regarding the type of incision. We have found that in a large majority of cases the Stewart or transverse incision gives adequate exposure for the most radical operation and insures a better functioning arm; this is especially true where infection of sloughing takes place. While it is too early for accurate figures, we agree with most of the leading authorities that the electric cautery knife is most desirable in this work in that by sealing the lymph spaces as it cuts there is less likelihood of local recurrence. Also, the coagulation by electricity insures a cleaner wound with the prospects of infection reduced to a minimum. It has been said that local recurrence is evidence of faulty technique; however, I think it can more often be ascribed to the fact that too little skin is removed at the time of operation. This is borne out by Harrington's report in which 80% of his cases showed evidence of early skin involvement.

SUMMARY

1. Surgeons and radiologists are agreed that early operation plus radiation offers the best results.

2. After glandular involvement the incidence of 10-year cure is reduced approximately 75% regardless of the treatment.

3. No physician can diagnose breast tumors accurately without microscopical tissue examination.

4. It is the duty of every physician to become interested in the cancer prevention campaign; certainly to the extent of recognizing early precancerous lesions and advising proper treatment.

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SYPHILIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER*

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WHEN we come to consider that 200,000 cases of syphilis are reported annually in this country to public health authorities (more than any other disease except measles) and a great many more that are never reported, that our own State Health Department treated 4,107 cases in their free clinics during the past fiscal year at a total cost of $6,465.80 for drugs alone, that there is an estimated annual cost of eighty-eight cents per capita for the treatment of syphilis, that our own city of Charleston has one of the highest venereal rates of any city in the United States, we must admit that somewhere, somehow, we as representatives of the medical profession of this state and city have failed in our duty to our state, to our city and to society in general.

Why is it when we have a knowledge of the disease for centuries, methods by which a definite diagnosis can be made, all the medicines necessary to cure, certainly to prevent transmission, that we have made little or no progress toward eliminating this disease? We know that progress can be made because in the Scandanavian countries syphilis has been practically eliminated, that their noted syphilologists have had to close up or take up some other branch of medicine, that in Great Britain the incidence of new cases of syphilis has been reduced by 75% in the past fifteen years, that in our own country, many big corporations have practically eliminated syphilis in their towns and among their employees. Aside from the teaching of prophylaxis and mode of transmission of this disease, there can be but one answer to this question. We have failed to keep up with the progress of our time. We have failed to follow the splendid work of our syphilologists, notably Stokes of Philadelphia, Moore of Baltimore, O'Leary of the Mayo Clinic and many others, or even our own United States Public Health Service. They have been advocating for years that syphilis can be cured, that the disease can be practically eliminated in a generation and that we have the drugs to do it now if they are used correctly. That with the question of diagnosis is the subject which has been assigned to me tonight.

Diagnosis: The signs and symptoms leading toward a diagnosis have been so well described to you tonight by Doctor Rohr that I shall limit my brief remarks to the question of a definite diagnosis. *Don't treat syphilis until a definite diagnosis has been made.* I know of no greater problem or a more deplorable situation than to be consulted by a patient who has had a penile sore, who consulted some physician, who looked at the sore, diagnosed it syphilis and started treatment. After three or four injections in the arm everything seemed all right, or the patient ran out of money, so he was pronounced cured. Certainly if this man had syphilis he did not have enough treatment; if he did not have syphilis we would not want to subject him to the long, drawn out procedure necessary for a cure. Situations such as this happen quite frequently when we know that they could have been avoided if we would only take the time to practice scientific medicine as it should be practiced.

Early a definite diagnosis can be made by the dark field. Personally I think that every ulcer on or near the external genitalia in both male and female should have a dark field examination as soon as it is possible to get it. The so-called typical chancre is rare, more often we find the sp. pallida in some small

*Read before the Kanawha Medical Society at Charleston on March 13, 1934.

insignificant ulcer we would have a tendency to put something on, thinking it would heal up in a few days, so keep cauterizing agent and antiseptics off these ulcers until the question of syphilis has been eliminated if possible, remembering that the earlier a definite diagnosis can be made the earlier we can start systematic treatment and the more certain we are to get a cure.

The second procedure by which a definite diagnosis can be made is by the blood reaction, either the Wassermann reaction, the Kahn, or some other precipitation test. Personally, I want one checked against the other, preferably the Kahn against the Wassermann. These are valuable procedures and the only way a definite diagnosis can be made after the disappearance of the chancre, and again we must remember that if a rash has developed it more often is not typical, but may simulate almost any known skin lesion. However valuable these tests are we must remember that the blood usually does not become positive until about six weeks after the appearance of the chancre and that valuable time has been lost toward getting a cure.

Treatment: The most important factor in the treatment of syphilis is *TIME*. Not the time idea that the physician of a recent patient of mine has, who somehow got the idea that all the treatment necessary was three injections in the arm once a year for three years or a total of nine injections in all, but a systematic continuous, uninterrupted treatment for a minimum of one year after the blood has become negative.

Our objects then, according to the investigations carried on by our leading syphilologists over the past decade in order to cure and prevent the transmission of syphilis are:

1. At least thirty to forty injections of the arsphenamines in courses of six to ten as deemed advisable for primary syphilis, more depending on the stage of the disease.

2. Alternating courses of bismuth or mercury by injection or inunction.

3. Continuous treatment, no rest period for a minimum of one year after the blood has become negative.

4. A blood test after each course of treatment.

5. A complete spinal fluid examination at the end of the first six months of treatment and again before the patient is discharged as cured.

6. A blood test every three months for two years, then every six months for five years after the patient has been discharged.

7. Complete protection to the wife or husband, no children until after the five-year period is up.

8. Continuous treatment to the pregnant syphilitic woman.

These are our objects to obtain. How are we going to do it? First, we must consider the patient. He must be made to realize that the condition he has is an emergency just as great as a major operation, that the disease requires a long tiresome course of treatment, that he will hear of many members of our learned profession who still guarantee that they can cure syphilis with six of this and six of that, rest a month, then repeat the magic sixes with no further checkup. Gentlemen, we know that syphilis cannot be cured and eliminated that way. Again we should try to make the treatment as agreeable and comfortable as possible. We should try to avoid reactions by giving our intravenous medications *SLOWLY*, one cc. a minute is a good rule to follow, yet at the same time explain to our patient that he will probably have at some time during the course a rather severe reaction. Always use the smallest needle we can safely use for intravenous work, for intramuscular use the best needle is a 22 G, two-inch needle. Do not use a dull rusty needle. I believe we lose more patients from the use of large, dull, rusty needles in the treatment of syphilis than any other single factor. These are simple things all of us know or have forgotten, yet they become extremely important over a long course of treatment from the patient's standpoint. Another factor is the economic question. This depression certainly

has taught us a good lesson; we can no longer demand and expect to get the fees for the treatment of syphilis now or in the future such as we have in the past. Our fees will have to be scaled down very materially if we ever expect to regain, even a small proportion of that enormous number of patients now treated by the free clinic.

For the actual treatment of early syphilis we have four standard preparations, named in the order of their therapeutic value:

1. The arsphenamines;
2. Bismuth;
3. Mercury;
4. Iodides.

1. Arsphenamines:

A. Of the arsphenamines, the old arsphenamine still has the greatest therapeutic value. Unfortunately, it has many undesirable features. It requires a more elaborate equipment; it must be alkalinized before use; it requires a greater knowledge of intravenous therapy and sometimes there are rather severe reactions.

B. Neoarsphenamine remains the most popular for the average practitioner. It has not the therapeutic value of arsphenamine, but the same results can be obtained by using more injections and larger doses. It is easy to give, it must be mixed and used immediately, it must not be stirred or areated and the syringe and water must be cold.

C. Silver arsphenamine is the most valuable of the newer arsenicals. It has a therapeutic value equal to or slightly better than neoarsphenamine. For those of you who are not familiar with it, it is given the same way as neoarsphenamine. Contrary to some opinions it is not necessary to filter it. It has not the marked ether odor so objectionable to some patients, has a smaller arsenic content and can be used in some patients who are sensitive to arsenic. It is supposed to penetrate the spinal canal better than the other arsenicals. It is used in doses up to .3 grams.

D. Tryparsamide is of value only in paresis. It is of no value in early syphilis, it should not be given when there is any eye involvement and the eyes should be checked weekly during the first month of treatment.

E. Sulpharsphenamine I shall mention only to condemn. It has no great therapeutic value and is the most dangerous of all the arsenicals. It is extremely painful and more cases of exfoliative dermatitis, acute yellow atrophy of the liver and acute nephritis have been reported from the use of this drug than from any of the other arsenicals. Recently the Council of Pharmacy of the American Medical Association has condemned it and removed it from new and non-official remedies. We would be wise to follow their advice. A better preparation for infants, children and those cases where it is impossible to get into a vein is bismuth arsphenamine sulphonate (Bismarsen). It has proven satisfactory, of a better therapeutic value and less dangerous.

Of the several newer arsenicals nothing has been proven. Don't buy arsenicals because they are cheap; they are often of no therapeutic value. Be sure they are standardized and made by a high class pharmaceutical house. The detail man and high pressure salesmanship has caused a tremendous lot of bad results in the treatment of syphilis.

2. Bismuth:

Bismuth has made more progress since its introduction ten years ago than any other single drug in the treatment of syphilis. It is the best of the heavy metals yet discovered, of greater therapeutic value than mercury and less apt to cause untoward effects. Bismuth should never be given intravenously as the therapeutic dose is too near the toxic dose. The best forms of bismuth at the present time are potassium bismuth tartrate and bismuth salicylate in oil. Not enough work has been done on the water soluable products up to the present time to determine their therapeutic efficiency or how often it is necessary to give them to get results, so it is better to stay within those products that have been well worked out.

3. Mercury:

Mercury has stood the test of time as a valuable therapeutic agent in the treatment of syphilis. It is true that many of our favorite prescriptions have been critically analyzed and found wanting by the research worker, for instance, the famous old mixed treatment capsule has served its day and passed on, that many of the intramuscular products have been found wanting because of lack of absorption, that many of the newer intravenous preparations do not have a sufficiently high therapeutic index, but in spite of these there remains one of the oldest and *THE* best way to give mercury; that is, by inunction. We know it is efficient, we know it is cheap, we know we can get the results if it is properly used, so why not use it?

4. Iodides:

The iodides have no definite spirochetal value. Theoretically we use them because of their ability to break down gummatous tissue. This is the only value of the iodides and the old potassium iodide is still a good product.

There is no magic in the use of these drugs to get results. Each case is an individual problem. Each case must have a complete physical examination before any treatment is started, then at definite intervals throughout the course of treatment.

For the normal, otherwise healthy early case of syphilis, the ideal treatment is as follows:

1st day ..... .3 gms. Neo arsph.
5th day ..... .45 " " "
10th day ..... .6 " " "

Week

3 ..... .6 " " "
4 ..... .6 " " "
5 ..... .6 " " "
6 ..... .6 " " "
7 ..... .6 " " "
8 ..... .6 " " "
9 ..... .6 " " "

Wassermann.

10-14 ..... Bismuth. 2 gms. q. 5 days for 6.

Wassermann.

15 ..... .3 gms. Neo arsph.
16 ..... .45 " " "
17 ..... .6 " " "
18 ..... .6 " " "
19 ..... .6 " " "
20 ..... .6 " " "
21 ..... .6 " " "
22 ..... .6 " " "

Wassermann.

23-28 ..... Bismuth .2 gms. q. 5 days for 8.

Complete blood and spinal fluid examination.

29 ..... .3 gms. Neo arsph.
30 ..... .45 " " "
31 ..... .6 " " "
32 ..... .6 " " "
33 ..... .6 " " "
34 ..... .6 " " "
35 ..... .6 " " "
36 ..... .6 " " "

Wassermann.

37-42 ..... Ung. Hg. plus KI. Daily rubs.

Wassermann.

43 ..... .3 gms. Neo arsph.
44 ..... .45 " " "
45 ..... .6 " " "
50 ..... .6 " " "
51 ..... .6 " " "
52 ..... .6 " " "
49 ..... .6 " " "
50 ..... .6 " " "

51-57 ..... Bismuth .2 gms. q. 5 days for 10.

Wassermann.

58 ..... .3 gms. Neo arsph.
59 ..... .45 " " "
60 ..... .6 " " "
61 ..... .6 " " "
62 ..... .6 " " "
63 ..... .6 " " "
64 ..... .6 " " "
65 ..... .6 " " "

Wassermann.

66-71 .....71 Ung. Hg. plus KI. Daily rubs.

Wassermann.

72 ..... .3 gms. Neo arsph.
73 ..... .45 " " "
74 ..... .6 " " "
75 ..... .6 " " "
76 ..... .6 " " "
77 ..... .6 " " "
78 ..... .6 " " "
79 ..... .6 " " "

Wassermann.

80-86 .....Bismuth .2 gms. q. 5 days for 10.

Primary seronegative syphilis may stop here if blood and spinal fluid have never been positive.

87	.....	.3 gms.	Neo	arsph.
88	.....	.45	"	"
89	.....	.6	"	"
90	.....	.6	"	"
91	.....	.6	"	"
92	.....	.6	"	"
93	.....	.6	"	"
94	.....	.6	"	"

95-103 ..... Bismuth .2 gms. q. 5 days for 12

103-123—No treatment. Blood Wassermann every two months.

124—Complete physical examination. Blood and spinal fluid examination. Thereafter Wassermann every six months for five years.

Briefly, the treatment of late syphilis is a problem all of its own. I believe that it is best taken care of by a specialist of that particular system that is involved. We do not hope for a cure, we can only hope to arrest the process. As a general rule, treatment in these cases should be begun by a course of bismuth, mercury or even the iodides, gradually working up to the arsenicals. In involvement of the cardio-vascular system or liver the arsenicals should be used sparingly if at all.

Of the special forms of treatment, the Swift-Ellis and the Ogilvie treatments have been practically discarded. The Gilpin-Dercum treatment of weekly spinal drainage is of value in tabes and to help get the paretic over an acute mania. The recently introduced fever therapeutics, that is, inoculation of malaria, foreign proteins intravenously as typhoid vaccine and diathermy offer a great deal to the paretic. Of these malaria seems to offer the most. What the future holds for this form of therapy only time can tell, at any rate let us give these unfortunate individuals any benefit it may offer.

In conclusion let us remember that:

1. Syphilis as a disease has been sadly neglected by our profession during the past decade.

2. The treatment of syphilis has entirely changed during the past eight years.

3. We should not treat syphilis until a definite diagnosis has been made.

4. The minimum treatment should continue for one year after the blood has become negative.

5. There should be no rest period at any time during the course.

6. There is no magic in numbers in the treatment of syphilis. *TIME* is the most important factor.

Finally, let us eliminate syphilis, we know it can be done, and using an expression of the day, "it is up to us."

CALORIES IN HOT WEATHER

For practical purposes, it may be said that the best way to feed infants and young children in hot weather is to recognize the food needs and food handling possibilities of the individual under normal conditions and to make periodic adjustments to meet special conditions. A leaner mixture and less fuel for the same performance is the basic rule for men as well as motors when the air is hot, according to Dr. Gaylord W. Graves who makes some recommendations on "The Hot Weather Problem in Infant and Child Feeding" in the July *Hygeia.*

It is suggested that in an emergency the baby be given clean warm water rather than doubtfully clean milk. If the infant or child can get through a few weeks of extreme heat without any serious digestive disturbance, he will eventually gain in September as he did in May. It is better to have fewer calories in the bottle and fewer ounces of baby than an empty crib robbed by such an old fashioned disease as "summer complaint."

Overindulgence in ice cream and candy, rich sirupy drinks between meals, fried food, disregard for time intervals requisite for proper digestive function, excessive fatigue, and contamination of food by unclean fingers and flies have always made children ill in hot weather. The same factors are a menace when the weather it not hot.

THE PROPHYLAXIS OF GALL-BLADDER DISEASE*

By GEORGE F. GRISINGER, M. D.
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A REVIEW of the literature of the liver, gall-bladder and bile ducts discloses a vast majority of discussion confined to etiology and morbid states. On no other subject have I noted such a preponderance of discussion of treatment as against prophylaxis. This disparity is probably due to lack of a better general understanding of the etiologic factors concerned in biliary tract disease, as well as controversial differences as to the most satisfactory medical or surgical measures to institute in diseased states of these organs. The high percentage of unsatisfactory results following the introduction of both medical and surgical treatment, suggests that greater emphasis should be placed upon prophylactic measures in biliary tract disease. In making the statement that a high percentage of unsatisfactory results follows surgery, there is no intention to discredit surgery as it fills an indispensable rôle in the treatment of this disease.

The gall bladder, like the appendix, when unable to empty freely is usually troublesome. While it has been satisfactorily proven that the gall bladder wall contains muscle fibers possessing power of contraction, this power is quite feeble, and complete and satisfactory emptying depends largely upon activity of the individual; therefore the frequency of disease of this organ in persons who live a sedentary life. Metabolic changes also play an important rôle in the production of this condition as is evidenced by its frequency following pregnancy and certain diseases.

The manner in which the choledochus inosculates into the duodenum prevents the intestinal contents and intestinal bacteria from entering the duct. Should this occur, certain predisposing factors must be present in order that the bacteria may display their infectious properties. Certainly cholangitis occurs occasionally, due to extension of an inflammatory process in the duodenum, but the condition is descending, rather than ascending in the vast majority of cases. The important factors concerned in a descending pathological process of the gall-bladder and bile ducts are: (a) stasis, and (b) high concentration of cholesterol in the bile.

It is the concensus of experience that free drainage minimizes the danger of infection. This becomes a verity when traumatizing elements are excluded. Then the prevention of stasis in the gall-bladder and high concentration of cholesterol in the blood and bile should very materially lessen the incidence of this disease.

Satisfactory emptying of the gall-bladder can be induced by deep breathing and appropriate exercise after meals. Following a heavy meal a rest of one-half hour should be taken, followed by deep breathing exercises for five to ten minutes or a brisk walk for a mile. The deep breathing and increased respiratory rate due to a brisk walk not only aids mechanically in preventing stasis, but induces mild vagus stimulation which assures gall-bladder contraction. This also stimulates intestinal peristalsis, which should be encouraged. Exercise stimulates excretion by the skin thus aiding the elimination of cholesterol through other channels than the bile.

Since stasis with a high concentration of cholesterol in the bile means precipitation with irritation of the mucous membrane, producing a fertile field for the growth of invading bacteria, concentration must be prevented. The concentration is also the predominant factor in the production of stones. Study of the blood cholesterol is important

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as values above the normal mean a greater excretion through the bile. This can be lowered by proper dietary and medical measures. Cholesterol is held in solution by bile acids. The prescribing of some of these acids should, therefore aid in holding it in solution. A diet low in cholesterol is very important. A low cholesterol, high caloric diet may be prescribed in cases underweight and low cholesterol, low caloric in those overweight. Liver function should be promoted by prescribing an abundance of carbohydrates, thus increasing its glycogen reserve. During pregnancy the patient should be instructed to walk daily in the open air for a distance of one to two miles. Tight corseting should not be allowed. Deep breathing should be encouraged. It is the sedentary habit which encourages stasis. Metabolic disturbances cause a rise in blood cholesterol. Impairment of liver function and improper diet are responsible for the high incidence of gall-bladder and bile tract disease following pregnancy and not pressure from the enlarging uterus as has been repeatedly said. The frequency of this condition in persons who have had typhoid fever can be accounted for by the prolonged period of bed rest, metabolic disturbance and the type of diet during and after convalescence. Having seen a number of cases of tuberculosis requiring long periods of bed rest, I have noted considerable complaint of discomfort under the right costal margin which in my opinion was due to stasis in the gall-bladder with highly concentrated bile. One of these cases developed mild jaundice.

SUMMARY

1. Discourage sedentary habits.
2. Encourage deep breathing.
3. Watch the blood and bile cholesterol during pregnancy and prolonged illness.
4. Diet prescriptions containing an abundance of cholesterol diet should not be given.
5. Tight corseting should not be permitted.

THE DIAGNOSIS AND TREATMENT OF SOME CONDITIONS REQUIRING BRONCHOSCOPY*

By VICTOR A. WILLIAMS, M. D.
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THE rate of medical progress in recent years far surpasses any like period in the past century. Clinical research and investigation have set such a rapid pace that closer application and more alertness are necessary to keep abreast. New clinical methods and improved means of investigation have been advanced, along with more modern concepts of disease processes. To this general change which is taking place, each department of medicine is contributing.

In this march of progress, otolaryngology has not been lagging. There has been no lack of advancement in ear, nose and throat work, and newer technique, improved operations, changed concept, and superior methods have added immeasurably to the accomplishments and skill of the otolaryngologists. These advances have broadened his field of usefulness and contribute to his ability to accept a wider range of conditions for treatment. Since the most valuable aid in all diagnostic fields is inspection of the lesion by direct vision, the pursuit of pathologic processes downward from the nose and throat has been greatly facilitated by the introduction of the bronchoscope. A noteworthy contribution to medicine, bronchoscopy has become a recognized and accepted procedure which stands entirely on its own merits. Bronchoscopy is not only a new and more certain approach to pathological processes, for-

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merly beyond reach of direct vision, but has demonstrated its usefulness as an accurate and effective procedure in the completion of diagnosis and treatment of many intratracheal and intrabronchial conditions.

The conditions to which bronchoscopy is applicable are many. Certain cases however, present themselves to a special consideration by the bronchoscopist, and among the more important of these is lung infection. Since the introduction of direct inspection of the interior of the trachea and bronchi, we have learned that interference with normal adequate drainage of the tracheobronchial tree, is the chief factor concerned in the retention of secretions and accumulation of purulent material. We know also that the patient does not expel or is incapable of thorough and complete expulsion and emptying of the trachea and bronchi. This is clearly shown upon viewing those portions of the bronchi involved when they are found completely filled with muco-purulent secretion. This is due to the loss of cilia in most cases or to impairment of ciliary action and to the formation of granulations which decrease the size of the lumen. It is evident that the decrease in caliber of the lumen, from whatever cause, is an obstructive mechanism, and that the expulsion of the secretions distal to this point of obstruction would be accomplished with the greatest difficulty, if at all. The sputum which the patient expels is that portion which is forcibly squeezed and extruded through the obstruction by the force of the chest wall and diaphragm during cough. This creates in that portion of the bronchus distal to the obstruction at all times a well of pus or mucopus. The mechanical nature of these obstructive features is apparent. Furthermore the infectious organisms penetrate the walls of the bronchus and establish chronic infection in the submucosa and eventually weaken the muscular coats. A dividing line between chronic bronchitis and bronchiectasis is usually one of degree only, since the long continued chronic lung infection, with cough, produces deformity and dilatation of the bronchial wall. While the etiology of bronchial dilatation is not as yet settled, it has been generally accepted that cough with weakened bronchial walls is an important contributory factor.

Here then is the pathological picture of the clinical condition present. This supplies an adequate explanation of the long continued persistent nature of the symptoms and the uncertainty and in most instances the futility of the administration of the usual remedies in the effort to control the cough and correct the condition.

Where chronic bronchitis ends and bronchiectasis, with its collection of secretions, begins, is a diagnostic differentiation dependent largely on bronchoscopy, pneumonography, and careful x-ray interpretation.

The diagnostic principles of chronic bronchitis and bronchiectasis, as generally accepted, have changed not at all. Their application is as necessary as formerly. To these however, can now be added the diagnostic feature of instillation of iodized oil, or the insufflation of opaque powder into the tracheobronchial tree by means of the bronchoscope. In this manner, the iodized oil, or opaque powder finds its way into the smaller bronchi and bronchioles. The röentgenogram taken immediately after will show the outlines of the bronchi and bronchioles with clearness, delineating any pockets, sacculations, or cavities. In this manner we are able to determine the location of the bronchiectasis, which occasionally may exist in one lung only. The film further determines the extent of the involvement, which to a considerable degree influences the outlook for recovery or improvement. As a focus of infection, bronchiectasis ranks equally with other known sources of focal sepsis. Absorption from this type of tissue is rapid and continuous. Its effect on the general system is obvious. Saprophytic infection and consequent odor of the secretions further add to the distress and discomfort of the patient.

Chronic bronchitis or bronchiectasis in many instances begins in childhood, and a

careful history will reveal a long continued cough over a period of many years. The earlier in point of age treatment is instituted, the more favorable outlook for restoration or arrest before deeper involvement has taken place, and more or less permanent changes in the bronchial walls have followed. It is worthy of note that hemoptysis occurs more frequently in bronchiectasis than in pulmonary tuberculosis, and that it may be the first and only symptom unattended by cough. It is not to be forgotten that the long sojourn of a foreign body in the lung will produce a bronchiectasis, therefore every case of bronchiectasis must also be considered a foreign body possibility.

The most recent literature confirms the statement that eighty percent of bronchiectasis cases show chronic paranasal sinus infection. This has been abundantly demonstrated by x-ray examination. Most competent observers now concede this to be the most important etiologic factor in the production of bronchiectasis. It has been shown by Mullin that lymphatic drainage of the sinuses may and does infect the peribronchial structures. In the management of bronchiectasis, bronchoscopy has come to play one of its most important rôles. It is for bronchiectasis that bronchoscopy finds its largest field of usefulness. In spite of popular conceptions, the largest percentage of work done in the Jackson bronchoscopic clinic is for bronchiectasis, and but approximately only two or three per cent for foreign bodies. Obviously, one of the important aims in the treatment should be careful search for, and early and complete eradication of probable foci of infection. Especially is this true in children. The early and repeated use of the bronchoscope for aspiration of secretions, and the breaking up of granulations, followed by direct application of medication to the involved areas is the usually indicated procedure. Although medical literature is eloquent with suggestions of methods of medical treatment of bronchiectasis, Jackson and others have repeatedly and convincingly shown that aspiration and instillation of medication is of invaluable assistance to the clinician in the establishment and maintenance of drainage.

In the treatment of lung abscess, either postoperative or postpneumonic, the bronchoscope has been of great value. While it is true that occasionally a lung abscess may drain itself, it is equally true that the majority do not adequately drain spontaneously. The divergence of opinion concerning the pathway of infection in post-tonsillectomic pulmonary abscess led to considerable controversy. Fetterolf and Fox, Jackson and many others have contributed to our knowledge of this condition. Sufficient evidence has now accumulated to conclude that the infection may occur by either the inspiratory or embolic routes. Bronchoscopic and x-ray examination may give adequate information in the determination of the pathway. Postoperative pulmonary abscess usually manifests itself as an acute condition, accompanied by symptoms and signs of a suppurative process in the lung—pain, fever, chills or chilliness, and a cough with or without expectoration, and perhaps hemoptysis. Flick, Clerf, and others, have reported a series of one hundred and seventy-two cases in which the onset varies from one to thirty-five days, with an average elapsed postoperative time of seven days.

The onset, with cough, elevation of temperature, and presence of lung signs frequently suggest the diagnosis of pneumonia, an error which may not be evident until later developments indicate a change in diagnosis. The rupture of the abscess into a bronchus is followed by a frequent distressing cough, associated with expectoration of fetid, purulent material. When the abscess ruptures into the pleural cavity, the usual signs of chest fluid and pneumothorax may be present, with unmistakable signs of a catastrophe and a gravely ill patient, who usually succumbs in spite of prompt surgical drainage.

The determination of the presence and location of a pulmonary abscess requires a consideration of the history, symptoms and

signs, observation of the sputum, x-ray observation and bronchoscopy. The occurrence of cough and fever after operation should always arouse suspicion of the possibility of a pulmonary abscess. Very significant is the appearance of purulent expectoration, especially so if with foul odor. The röentgen and bronchoscopic examinations are invaluable in the complete diagnostic study, and aid particularly in the localization of the lesion, which is essential in consideration of the type of treatment. Obviously a differential diagnosis must be made from pneumonia, tuberculosis, bronchiectasis, foreign body suppuration and empyema. Central or peripheral location of the abscess by röentgenogram will determine whether the approach must be by bronchoscopy or the case definitely falls into the category of surgery.

The ability of the bronchoscopist to inspect the bronchi and the smaller bronchial orifices renders bronchoscopy a valuable aid in early diagnostic localization. Pus observed coming from the orifice of a bronchial subdivision is positive evidence of the presence of suppuration. In certain cases of pulmonary abscess it may be necessary to do pneumonography for accurate localization of the cavity. Bronchoscopic aspiration can safely and quickly be carried out in properly selected cases and is one of the most efficient methods of treatment at our command.

Adequate drainage which is the most important single factor in the spontaneous recovery of these patients can often be secured by bronchoscopy. This is accomplished by the removal of obstructing masses of granulation tissue, by the aspiration of the large quantity of pus in the smaller bronchi and by removing secretion from the abscess cavity. Every case of abscess must receive careful study by the internist, röentgenologist, surgeon and bronchoscopist. All cases are not suitable for bronchoscopy, and some cases are definitely surgical. The best results are obtained when bronchoscopic treatment is instituted early in the disease. This has been stressed by Jackson, MacRae and others.

In 1927, Mastics, Spittler, and MacNamee expressed the opinion — "that postoperative atelectasis is a definite entity and presents characteristic clinical and röentgenologic evidence which serves to differentiate it from other postoperative pulmonary complications. Partial atelectasis is a most common type." Since that time, literature on postoperative pulmonary atelectasis has increased and further observations have been recorded. Corroborative findings have accumulated in sufficient quantity to accord this condition a prominent place in postoperative complications. Based upon their observations, these observers believe that atelectasis comprises approximately seventy per cent of all postoperative pulmonary complications.

In 1928, Lee and Tucker reported a total of fifty original cases, noting that in many instances the atelectasis may be diagnosed by x-ray routine and remain unreported, and concluding that the series of fifty were but a very small proportion of the incidence of this clinical entity. Massive collapse while most dramatic and the easiest of clinical recognition is the least frequent.

Lee and Tucker suggest the anatomic classification of: I—massive atelectasis; II—lobar atelectasis; III—lobular atelectasis.

A deserving quotation is Mastics' summary: "Pulmonary atelectasis is a common postoperative pulmonary complication which presents a striking and characteristic röentgenologic and clinical picture. No doubt the majority of these postoperative conditions which have been regarded previously as either aspiration or postoperative pneumonia, bronchitis or bronchopneumonia, have been cases of atelectasis." In other words this condition as a rarity is more apparent than real (Tucker and Lee).

Discussing the etiology, Elliott and Dingle, in 1914, suggest that it results from diaphragmatic immobilization, associated with bronchial obstruction, the alveolar air being absorbed by the circulating blood. Jackson, Lee and Tucker have corroborated

these observations by removing masses of bronchial secretion obstructing the bronchus, supplying the atelectatic area in three cases, Lee and Clerf in two cases. Hearn and Clerf report a case of massive collapse in which seven bronchoscopies were necessitated by reaccumulation of secretion. Clerf reports seventeen bronchoscopies in one case for removal of repeatedly accumulating obstructive mucus in the bronchi, causing atelectasis.

Concerning the nature of the obstruction, all are in agreement that it occurs most constantly in patients with marked increased secretion in the respiratory tract. This is often evident during the anesthesia, and these patients have been termed "wet patients." Anesthesia is difficult because of increased respiratory secretion and frequent cough, and often a profuse expectoration following anesthesia and a peculiarly tenacious sputum. The sputum resembles that in lobar pneumonia after the crisis, sometimes clear, or greenish-yellow in color, and the sputum, because of its viscidity, will remain its original shape for hours after expectoration. This tenacious secretion completely occludes the bronchi, proximal to the atelectatic tissue, and when aspirated and this obstructive tenacious mucus removed, that portion of the lung becomes reinflated with air.

The usual locations, based on frequency, are as follows: (1) posterior portion of the right lower lobe; (2) right lower and middle lobes; (3) left lower lobe; (4) right upper lobe; (5) left upper lobe.

The onset is probably best indicated by one or several of the following signs and symptoms which are dependent upon the extent of the pulmonary involvement: (1) a marked facial flush; (2) a sensation of tightness or pain in the chest; (3) dyspnea or rapid breathing; (4) sudden elevation of temperature, pulse, and respiration; (5) cough, with or without expectoration; (6) possibly profuse sweating and possible cyanosis.

On physical examination, a very striking picture may be present. The displacement of the heart toward the affected side and the chest asymmetry are characteristic. Inspection shows marked asymmetry of the chest. The affected side appears smaller, almost flat. The interspaces are diminished in size, the ribs converge, and a marked respiratory lagging is noted. This is markedly in contrast with the opposite side—the sound side—which bulges and shows an exaggerated respiratory excursion. The heart is definitely displaced, but the shift in position is to the affected side—it is pulled over by the negative pressure on that side, and is most marked in cases of right-sided atelectasis. Percussion elicits dullness over the affected side and the dullness is due to the collapsed lung and absence of air; it is usually posterior. The space not occupied by the lung is hyperresonant and occasionally tympanitic. Auscultatory signs, while present, are variable and confusing and not dependably diagnostic.

The careful interpretation of the röentgenogram will in a great many cases establish the diagnosis. Emphasis should be placed on the curvation of the vertebral column, the concavity being toward the affected side; the convergence of the ribs; the heart and mediastinal structures displaced toward the affected side; and displacement of the trachea. The diaphragm on the affected side is elevated above normal position, and below normal position on the opposite side. On the side of the atelectasis there is increased density and decreased density on the opposite side, due to the compensatory emphysema.

Jackson has compared the mechanism of atelectasis in this condition to the atelectasis produced by foreign body. The secretions cause "a stop valve" obstruction of the bronchus similar to that produced by foreign body. In the latter variety, the bronchoscopic removal of the foreign body allows the atelectatic lung to expand. If the sojourn of the foreign body has been short, complete expansion will occur in twenty-four to forty-eight hours. The same result is seen in postoperative atelectasis following the bronchoscopic removal of the obstructive secretion. The advisability of bronchoscopic removal of the obstruction should be considered in all cases of massive collapse of the lung.

EXTRAGENITAL CHANCRES*

By HOWARD T. PHILLIPS, M. D., WM. J. MORGINSON, M. D.
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EXTRAGENITAL chancres are relatively rare yet their incidence is sufficiently frequent to justify an occasional reminder of their possibility. Any lesion on the genitalia immediately arouses suspicion of syphilis. Primary lesions which develop elsewhere are, as Stokes[1] says, "protected from recognition by a singularly low threshold of suspicion on the part of physicians—and seem to be suggested last to the examiner instead of first of all possible lesions." A cursory review of the literature reveals that they predominantly afflict the innocent and are not considered by the patient or the physician as syphilitic. Only a small percentage of extragenital chancres seem to follow various acts of perversions, although on first impression this method of contracture would be thought the most common.

The percentage of extragenital chancres in relation to genital lesions are reported by various authors from 1.3% to 24.5%.[2] This figure has gradually risen since syphilis has become a universally reportable disease and since physicians are becoming satisfied only with an exact and accurate diagnosis before therapy is attempted. Our own practice shows fifteen extragenital chancres in a total of seventy-eight chancres or a percentage of roughly 19%. One country, Russia, shows astounding statistics of 75% to 80% syphilitic primary lesions to be extragenital.[3] This is due especially to the primitive habits of eating in the lower classes where a thick porridge is eaten from a common dish with wooden spoons which are never washed, but licked off and hung up ready for the next meal.

The figures for the various locations of extragenital lesions are fairly constant as reported. Lip lesions predominate, constituting about 50% of the chancres. Other areas are affected roughly in the order listed: breasts and nipples, fingers, hands, eyelids and conjunctiva, tonsils, pharynx and nasal cavity, tongue, chin and cheeks, trunk, anus, etc.[4] Of the fifteen extragenital chancres in our records, eleven were on either the lower or upper lip, one on the buccal mucosa, one on the left thumb, one on the neck and one on the pubic area.

In contradistinction to genital chancres where three times as many males are infected as women,[3] extragenital lesions are about equally divided between men and women with males slightly predominating. This is due to the frequency of lip lesions in the female and also chancres of the breasts and nipples.

Clinically extragenital chancres resemble genital lesions with a few peculiarities due to the locations involved. The lesion tends to be single rather than multiple and, if uncomplicated, tends to be relatively painless. Chancre of the finger is an important exception as it may be painful. There is a relative long incubation period, from twelve to forty days. The base is indurated; the surface shows an erosion rather than an ulcer; the border is sharply defined and in uncomplicated cases the edges are not undermined, ragged or necrotic. The exudate is serous rather than purulent. The chancre tends to be indolent, running a course of from three to eight weeks although the extragenital lesions usually involute in a shorter time. In about 70% of the cases there is a non-inflammatory, discrete, hard enlargement of the adjacent lymph nodes. In genital lesions this adenopathy is usually bilateral whereas in extragenital lesions this satellite adenopathy is generally unilateral. On healing, a

*Read at the Staff Meeting, Wheeling Hospital, December 20, 1933.

thin atrophic, often practically invisible, scar remains. The outstanding diagnostic features may be summarized as long incubation, indolence, slow course and satellite adenopathy. While these symptoms are characteristic, of course, the exact and indisputable diagnosis rests first on the positive darkfield examination and second in a positive Wassermann report.[1]

The overwhelming proportions of extragenital lesions occur about the mouth particularly the lips where kissing is the usual mode of transmission. The ordinary osculatory salute is a real danger and Stokes[1] very aptly says few things are more dangerous than being kissed by a syphilitic. Other sources of lip and mouth infections are the common drinking cup, common eating utensils, instruments, particularly dental and, less frequently, examples of unnatural sexual appetites. From the modern trend of social hygiene and public education, a reduction in the number of these chancres seems likely. A single lesion on the lip showing induration, slow development and healing and associated marked satellite adenopathy is a chancre until proven otherwise. Lesions to be considered in a differential diagnosis are carcinomas, gummas and herpes.

Primary syphilis of the tonsil constitutes a surprising percentage of extragenital lesions. The infection is usually unilateral showing first a sore throat, swelling of the tonsil, a stinging pain on swallowing and a hard, painless, non-inflammatory glandular enlargement of the same side. Physical examination of the tonsil shows enlargement, deep-red color, pillars red and swollen and a varying sized ulcer or erosion, which is usually covered with a dirty, grayish secretion or false membrane.[5] Chancres of the gums are rare with dental instruments and tooth brushes the principal agents of infection. The lesions may be abrasive or erosive and ulcerative with the usual lymphatic enlargement.[4] Chancres of the nose are usually acquired by picking with contaminated fingers. Lesions of the eyes are considered rare and are usually due to kissing, contaminated towels, handkerchiefs, soiled fingers, etc.[3]

Chancres of the nipples are conspicuous in women and occur in men. These are acquired by suckling of syphilitic infants, particularly in wet nurses, kissing, etc. The chancre exhibits its usual characteristics but Paget's Disease of the nipple must be considered in a differential diagnosis.

Ano-rectal chancres usually result from perversions and may present a typical Hunterian primary lesion or may show a diffuse, browning infiltration of all or part of the external or internal ring with multiple fissured chancres. Hemorrhoids may be transformed into an indurated primary lesion.[1]

Chancres of the fingers and hands deserve special mention because of their peculiar characteristics. About the fingers, a hangnail or break in the skin is not necessary and the lesion may vary from the appearance of a mild paronychia to a beefy-red, granulating fungus lesion suggesting a sarcoma. These lesions are generally very painful. The usual satellite bubo is the swollen epitrochlear node but this may be normal with the first involvement in the axillary glands particularly in the lesions on the thumb and forefinger drained by the radial group of lymphatics.

Finally, an article of this type would not be complete without mentioning the acquisition of syphilis professionally by physicians. The greatest number of infections occur in surgeons and obstetricians and gynecologists. The lesions usually occur on the hands and fingers following accidental cuts and needle pricks, although frequently a physician has a chancre develop on the fingers or hands without being able to trace its source. Contaminated fingers touching the lips, nose, eyes, etc., have produced chancres in these areas. Chancres of the eyes may result from sputum ejected by syphilitics.[5] Physicians can acquire syphilis of the syphilis d'emblee type without the appearance of a chancre by a direct infection of the blood stream follow-

ing puncture wounds produced by needles and instruments.

CASE REPORTS:

The following case reports are a selected few to illustrate some striking examples of extragenital chancres that we have seen in our practice.

Case 1: Mrs. M. R., housewife, aged 25, was first seen in 1929 with a chancre of the right labium majus which was diagnosed by the darkfield and serologically. She received adequate treatment and had repeated negative Wassermann reactions. In 1933, she showed typical extragenital chancres on the tip of the tongue and right nipple. These were diagnosed by the darkfield. This would indicate that her first syphilitic infection was entirely cured and the latter chancres were a new infection.

Case 2: J. M., white male, railroad fireman, aged 28, had a chancre on the left side of his neck which he claimed followed the removel of ingrowing hairs by a barber.

Case 3: P. H., white child, aged 5, showed a primary lesion on the thumb, acquired when helping her mother empty clothes baskets. Two darkfield examinations were negative but the Wassermann examination was positive and the lesion disappeared under specific treatment. Later the Health Department disclosed that a boarder had a penile lesion and put the dressings in the clothes basket.

Case 4: A physician, aged 34, had a primary lesion in the nasal orifice and vestibule. The darkfield was negative but the Wassermann positive. He was infected while delivering a syphilitic macerated fetus. He washed his face but did not wash inside the nostril and three weeks later the primary lesion developed.

Case 5: K. S., a white high school pupil, aged 18, had a primary lesion on the lower lip. While working in a grocery store, she was forcibly kissed by a fellow clerk with the resulting infection.

Case 6: A dentist, aged 32, had an infection on the index finger of the right hand which resulted from an infection at the site of a hang-nail.

Case 7: A physician, aged 57, presented a chancre on the right ring-finger following a vaginal examination without wearing gloves.

Case 8: W. F., a white male, aged 50, had a typical chancre on the posterior surface of the right arm. The darkfield examination was positive. He denied possible contacts and continued to express his ignorance of possible cause.

Case 9: G. H., white girl, aged 18, living at home, had a chancre on the left buccal mucosa which followed lingual osculations. Incidentally she had an imperforated hymen.

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REDUCING WEIGHT

"In the ambition to shed weight, men and women have never paused to consider the advisability of misdirected endeavor. As a consequence, death has been the end-result of numerous treatments for obesity. Before launching an antifat offensive, every prospective patient should undergo a thorough physical examination and should be careful to follow the recommendations to the letter," warns Dr. W. A. L. Styles in an article in the July *Hygeia* on "The Campaign Against Corpulence."

"Merely because discretion has not been combined with determination, failure crowns many efforts to regain normality in weight. Weight reduction should be secondary to physical betterment as a goal in the campaign against corpulence."

The safest general rule for superfatted persons to follow in reducing, the article suggests, is to refrain from eating between meals and to leave the table while still hungry. The only safe way to reduce is by dieting along the lines suggested by a qualified physician under whose supervision the treatment is conducted. Proper diet, supplemented by exercises suited to individual needs, brings dividends in the form of health; whereas wrong diet and faulty exercise, particularly when aggravated by objectionable medication, may wreck health and induce premature death.

HAY-FEVER—METHODS OF TREATMENT*

By LESLIE N. GAY, M. D.
Baltimore, Maryland

HISTORICAL: A comprehensive dissertation on a form of asthma which occurred only in the summer was published as early as 1700 by John Baptist Van Helmont, Professor of Medicine and President of the Royal Academy of Natural Science, Chief Physician in Hesse Darmstat[1]. The first paper in which hay-fever was described as an entity was published in 1819 by John Bostock of the University of Edinburgh[2]. So accurate and complete was Bostock's description that later writers have not been able to add much of clinical importance to it. Pollen, as an important cause of hay-fever and summer asthma, had been suggested by Elliotson[3] in 1831. The achievement of demonstrating pollen to be the exciting cause of the malady stands to the credit of Charles Blackley[4], a physician of Manchester, England, who published an exhaustive treatise on the subject in 1873 after fourteen years of the most elaborate and painstaking experiments. Since the work of Blackley[4], scientific investigation has established hay-fever as a definite entity beyond the shadow of doubt. In this discussion a review of the literature will be omitted, as a complete bibliography of the malady is found in the recent publication of Coca, Walzer and Thomen[5].

The Etiologic Mechanism of Hay-Fever and Pollen Asthma: Heredity as a controlling factor in the cause of hay-fever and pollen asthma is recognized as being of primary importance. There are still many unknown principles regarding the hereditary transmission of the disease. From data accumulated thus far, however, it is evident that hypersensitive individuals possess the capacity of transmitting to their offspring an unusual predisposition to the development of the hypersensitive state. With regard to the predisposition to hay-fever and pollen asthma in general, it may be said that it is not peculiar to any one type of constitution; it occurs in the weak or the strong, in blondes or brunettes, and in the phlegmatic or the temperamental.

To understand the mechanism of this malady it must be recognized not as a disease of the nose, the upper respiratory tract or the lungs, but as an immunologic defect with the mentioned organs as agents of manifestation.

Three factors are essential to its development. First, the presence in the blood serum of the subject of a specific reacting body to which Coca[5] has given the name "reagin." These reagins can be demonstrated by passively sensitizing the skin of normal individuals with the serum of known hay-fever subjects. Typical skin reactions can be produced in the sensitized site of the normal skin by injecting the specific pollen extract. (The Prausnitz Küstner technique.) The second factor is the existence of certain so-called shock organs, the tissue factor, which is purely a theoretic assumption, a factor which must exist in order that the symptoms can develop. The third factor is the exciting cause of the malady, the specific pollen, to be discussed in detail.

Season Occurrence of Pollen: The symptoms of hay-fever and pollen asthma are well known and need no further description at this time. However, the seasons for the occurrence of symptoms in the vicinity of Maryland and West Virginia are of interest. There are four pollen seasons in Maryland.

1. The tree season, March 1st to early May;

2. The grass season, May 13th to July 6th;

*From the Protein Clinic of the Medical Department of the Johns Hopkins Hospital. Read before the Marion County Medical Society of West Virginia, November 28, 1933.

3. The plantain season, May 13th to August 1st;

4. The ragweed season, August 10th to October 1st.

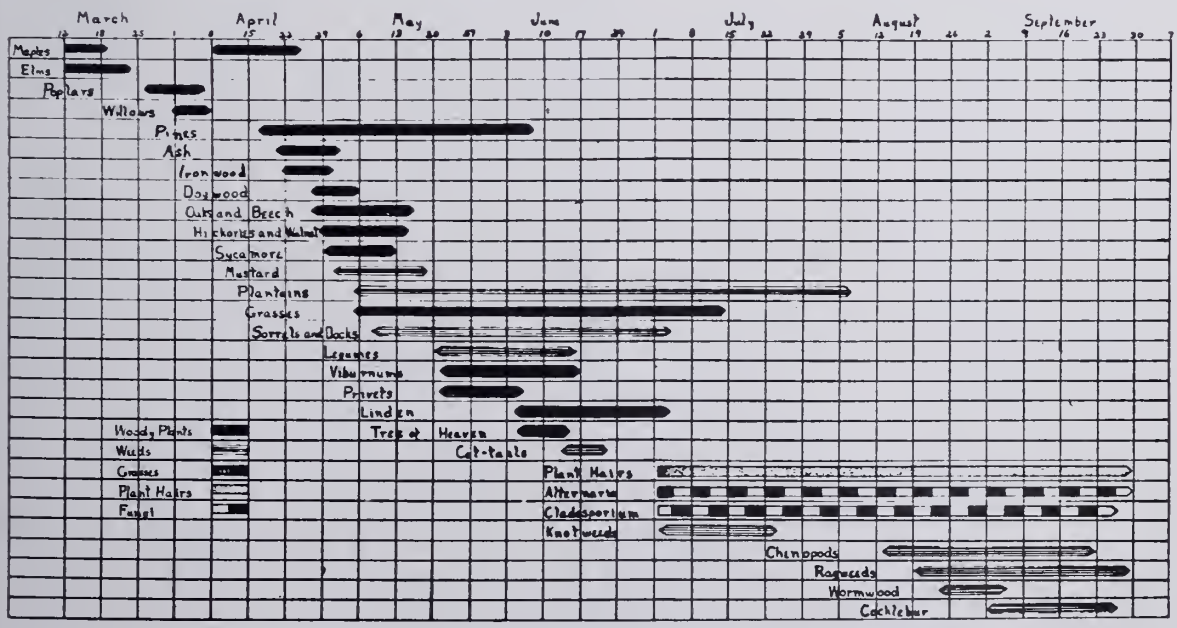
These seasons have been determined during the past four years by daily surveys of the pollen content of the atmosphere. Pollen grains can be differentiated, one from another, with as much ease as one can differentiate a red blood cell from a white blood cell. (See Chart I, Maryland pollen flora.)

With these four seasons in mind, therefore, a careful history of complaints will place the patient in one or another group for diagnosis and for treatment. Multiple hypersensitivity can exist, that is, a patient may be sensitive to both trees and grasses; to grasses, plantains and ragweeds; or to any combination of the four pollen groups. The diagnosis is made either by the cutaneous or intracutaneous tests with the individual pollen extracts properly diluted; and thereby, treatment is determined. The specific pollen must be given; if a patient reacts to the pollen of the grasses, i.e. timothy and orchard grass, he must be treated with the extract of this pollen. If he reacts to the pollen of ragweed also, he must be treated with an extract of grass pollen as well as ragweed pollen.

Methods of Treatment: With the advance in our knowledge of the mechanism of hay-fever and pollen asthma, progress has been made in the treatment of the disease. Many physicians are familiar with the method advocated by commercial houses. In the majority of instances this treatment is inadequate and results of treatment are quite disappointing. The fallacy in the instructions from commercial houses lies in the fact that treatment is usually completed and discontinued long before, or just as the pollen makes its appearance in the air. This method, the so-called preseasonal type of treatment can be quite successful if properly carried out.

1. *The Preseasonal Method:* Treatment should be commenced at least two months before the pollen appears in the atmosphere. For example, the grasses pollinate in May; treatment should be started in March. The ragweeds pollinate in August; treatment should be started in May. If one assumes that patient A is subject to grass and ragweed hay-fever or pollen asthma, the schedule of treatment as outlined may be followed. (Chart II) The concentrated pollen extract is prepared by extracting 5 grams of raw

CHART I



Pollen Flora in Baltimore, Maryland, during the year 1930 from March 1st to October 1st

pollen in 100 cc. of extracting solution. The nitrogen content of the final extract is 0.5 mgms. per cc. This solution is diluted accordingly 1:10, 1:100, 1:1000, and 1:10,000 and treatment is commenced using the 1:10,000 solution. An injection should be given at least twice weekly, preferably three times a week, each subsequent dose being larger than the preceding dose. To avoid serious constitutional reaction following an injection, rapid increase in dosage must be avoided. *Neither local nor constitutional reaction is a requisite to successful treatment.* The unpleasant local reaction can be avoided if the injection is given through the skin into the deep subcutaneous tissue and not into the superficial skin layers[6].

After the maximum dose has been reached, the patient should continue treatment, receiving the maximum dose every five days until the atmosphere is free of pollen.

Let us suppose that the patient is sensitive to grass pollen as well as ragweed pollen. The treatment with the latter extract should begin on May 1st and the injections can be given on the same day as the grass extract injection. The grass treatment may be discontinued on July 10th, the ragweed treatment on September 25th.

2. *Perennial Treatment:* For several years patients have been treated by a method which has been more successful than any form which has yet been used; a method which promises perhaps permanent relief. This method is the so-called perennial type. Assume, for example, that a patient has reached the maximum dose of ragweed extract on August 15th by the preseasonal method. He has received this dosage every five days until Stepember 25th. At this point the ragweed pollen practically disappears from the atmosphere. The patient, however,

CHART II

Routine Treatment of a Patient Sensitive to Grass Pollen and Ragweed Pollen.

The Solution Contains: Timothy and Orchard Grass.	The Solution Contains: Short and Giant Ragweed.
Treatment To Begin On March 1st	*Treatment To Begin on May 1st*
Frequency—Monday, Wednesday and Friday.	Frequency—Monday, Wednesday and Friday.
SOLUTION 1:10,000 0.1 cc. to 0.9 cc. SIX DOSES.	SOLUTION 1:10,000 0.1 cc. to 0.9 cc. SIX DOSES.
SOLUTION 1:1000 0.1 cc. to 0.9 cc. SIX DOSES.	SOLUTION 1:1000 0.1 cc. to 0.9 cc. SIX DOSES.
Nitrogen Content =0.5 mgms. Per cc. of Extract.	
SOLUTION 1:100 0.1 cc. 0.15 cc. 0.2 cc. to 0.9 cc. EIGHT DOSES.	SOLUTION 1:100 0.1 cc. 0.15 cc. 0.2 cc. EIGHT DOSES.
SOLUTION 1:10 0.1 cc. 0.15 cc. 0.2 cc. to 0.9 cc. NINE DOSES.	SOLUTION 1:10 0.1 cc. 0.15 cc. 0.2 cc. to 0.9 cc. NINE DOSES.
NOTE: After Dose 29 the Patient Should Receive 0.9 cc. 1:10 Solution Every Five to Seven Days Until July 10th at Which Time Grass Pollen is Out of the Atmosphere.	NOTE: After Dose 29 the Patient Should Receive 0.9 cc. 1:10 Solution Every Five to Seven Days Until September 25th at Which Time Ragweed Pollen is Out of the Atmosphere.

continues to receive the maximum dose throughout the subsequent pollen season and continuously for several years thereafter until it is established that he no longer has symptoms in a pollen-laden atmosphere[7]. Treatment is given every ten days or two weeks throughout the year and the frequent visits to the physician required by the preseasonal treatment is thus avoided.

Attention is directed to a group of patients treated in previous years by the *preseasonal method*. Several of them have been treated for as long as seven years. During the year 1931 the average number of days of symptoms per person was 21 days. In this classification an hour of distress was considered a day of symptoms. With *perennial treatment* most satisfactory results were obtained in this group of patients. The number of symptom days were reduced from 21 to 6 days. Control cases treated by the *preseasonal* method averaged per person 12 days of symptoms compared to 6 days in the group treated by the *perennial* method. (Chart III).

Great relief, therefore, may be promised if individuals are willing to subject themselves to the tedious task of continuing treatment throughout the year. A review of the results of other investigators, who have treated patients by the perennial method are as encouraging as these just presented.

3. *Co-seasonal Treatment:* A third method of treatment, which deserves mention at this time, is the co-seasonal treatment. If a patient comes for treatment in the midst of the season, the question is often asked how much relief, if any, can be given. If the dosage of treatment is conservatively limited, much can be done to relieve these patients. A minimum dose (0.1 to 0.2 cc.) of a dilution of 1:1000 is given in the Clinic of the Johns Hopkins Hospital as a routine amount of material. This represents an infinitely small amount of total nitrogen or of protein nitrogen. Treatment must be given every day in order to derive a satisfactory result. While the relief is not as satisfactory as in the individual who takes the preseasonal or perennial treatment, still relief is obtained when one compares the symptoms of the patient with controls who are not taking treatment. The amount of pollen extract injected each day is not increased. The danger of making the patient worse by experimenting with dosage at this stage is quite an important consideration. Treatment is discontinued when the specific pollen is no longer found in the atmosphere.

Constitutional Reaction: One cannot pass by as unimportant the danger of constitutional reaction. Even though every effort is made to avoid reaction from an injection,

CHART III

COMPARISON OF PRESEASONAL WITH PERENNIAL TREATMENT

DAYS OF SYMPTOMS		
PRESEASONAL TREATMENT 1931	PERENNIAL TREATMENT 1932	PRESEASONAL TREATMENT 1932
234 days of symptoms.	70 days of symptoms. 11 cases	24 control cases: 288 days of symptoms
AVERAGE NUMBER OF DAYS PER PATIENT:	AVERAGE NUMBER OF DAYS PER PATIENT:	AVERAGE NUMBER OF DAYS PER PATIENT:
21 DAYS	6 DAYS	12 DAYS

The eleven cases treated in 1931 by the preseasonal method were the same patients who were treated by the perennial method in 1932. These patients suffered with ragweed pollen hay-fever.

occasionally a patient may develop acute symptoms of hay-fever, asthma or angioneurotic edema with urticaria as an immediate aftermath of treatment. This reaction may be brought about by either the entrance of the injected solution into the blood stream, or, by mishap, the physician giving the treatment may inject into the subcutaneous tissue a stronger solution than was intended. The former accident can be avoided if precaution is taken to determine whether or not the needle is in a blood vessel by gentle traction on the plunger of the syringe. If blood is obtained the needle should be immediately withdrawn and treatment should not be given for at least fifteen minutes to determine whether by chance the small amount of solution washed from the tip of the needle by the blood stream produces a reaction.

The second cause of reaction can be avoided only by the careful labelling and handling of the solutions.

To combat a reaction, adrenalin is most helpful and should be immediately used; a half cc. of 1:1000 solution should be injected deep into the muscle. This amount should be sufficient to give relief, but if not observed in ten minutes the dose may be repeated.

4. *Air-Conditioned (Pollen Free) Atmosphere:* Recently a new method of treatment has been used to relieve individuals suffering with pollen hay-fever and pollen asthma. The mechanical devices to air-condition the atmosphere have proven to be of great assistance. Briefly the mechanism cleans the atmosphere of dust particles, including pollen grains, cools the air and reduces humidity to degrees of comfort for human occupancy. The cleaning of the air is, of course, the important factor insofar as the relief of symptoms of pollen hay-fever is concerned. A complete report[8] of the experiments which were carried on in the medical ward of the Johns Hopkins Hospital appeared in the Journal of the American Medical Association in May, 1933. The efficiency of the machine is clearly demonstrated.

In brief, patients suffering with the symptoms of pollen hay-fever were relieved within a half hour after they entered this clean, cool atmosphere. Those patients who had asthmatic symptoms caused by the inhalation of pollen were relieved after a somewhat longer residence in the air-conditioned room. However, within a very few minutes after they returned to the outside pollen-laden air their symptoms returned with equal severity. This method of treatment is remarkably effective, although the equipment of a room satisfactory for human occupancy is thus far too expensive for practical use. Undoubtedly, however, more economical and efficient methods will be devised which can ultimately be installed by those patients who suffer from severe pollen hay-fever or pollen asthma, and who fail to respond satisfactorily to immunologic treatment.

Summary: This brief consideration of methods of treating hay-fever and pollen asthma points out advantages of the perennial method over the pre-seasonal and co-seasonal methods. It is quite evident that progress has been made during the past five years. The pre-seasonal method, if pursued through the pollen season, is most beneficial. The co-seasonal method of treatment is helpful but is purely an emergency measure. The perennial method is the method of choice, both because of its convenience to the patient and because of the more satisfactory results obtained thereby. One must constantly be on watch for constitutional reaction; and careful preparation and handling of solutions is of primary importance. Treatment by occupancy in air-conditioned (pollen-free) atmosphere is ideal but as yet is not practical due to economic factors.

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TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

The thirtieth annual meeting of the National Tuberculosis Association was held in Cincinnati, May 14-17, 1934. In this issue of Abstracts, Dr. Esmond R. Long of Henry Phipps Institute presents a summary of the proceedings of the Pathological Section. Complete papers will be published later in the American Review of Tuberculosis and Transactions of the Association.

What is New in Pathology?: The meeting of the Pathological Section opened with the proposal of a standard tuberculin for general use and particularly for epidemiological studies. E. R. Long, speaking for the Committee on Medical Research of the National Association, pointed out that reports now accumulating from different parts of the country seem to indicate a wide difference in the amount of infection. The comparative value of the statistics he considered doubtful, however, in view of use of tuberculin of varying quality in the different localities. Through the work of F. B. Seibert it is now possible to supply a highly purified protein derivative, prepared from the tuberculin of the Bureau of Animal Industry of the United States Department of Agriculture in their extensive cattle testing program. Dr. Long reported the results of 2,000 tests with the product, called Purified Protein Derivative, indicating its efficacy, and proposed its use as a standard.

In the discussion Drs. John Reichel and L. T. Clark, representing biological supply houses coöperating with the Committee on Medical Research, described the technical details of manufacture of the proposed tuberculin, which is offered in tablet form.

In the next paper Drs. Steele and Willis presented evidence that repeated injection of tuberculin, either in the form of O.T. or in the form of a purified whole protein (T. P. T.), and in either the same or increasing dosage, increases sensitivity to tuberculin. The increase in sensitivity occurred when the repeats were spaced at any interval from one week to three months. In the active discussion following, the general view seemed to be that the phenomenon was one of heightening of sensitivity by the procedure rather than actual induction of sensitiveness.

Allergy and Immunity: A study reported by D. E. Cummings and A. B. Delahant threw light on the vexed problem of the relation of allergy and immunity. Guinea pigs vaccinated with the attenuated tubercle bacillus R^1 showed typical increased resistance to subsequent virulent infection, even when their skin sensitiveness to tuberculin was completely abolished by repeated injections of tuberculin, starting from the time of vaccination. Thus increased resistance occurred in the absence of hypersensitiveness, or at least hypersensitiveness demonstrable by the usual method of skin testing.

Silicosis: A study bearing on the large problem of silicosis was described by W. S. Lemon, who found that two substances of possible pathological significance in the dusty trades, viz., aluminum oxide (a constituent of emery) and boron silicate (a constituent of certain kinds of glass) produce much less permanent damage than silica when introduced in the lungs of rabbits. Each of the substances produced an early acute inflammation with outpouring of phagocytic cells, but the fibrosis caused by uncombined silicon dioxide (silica, quartz) did not occur with the other two materials.

Another paper on silicosis, by H. E. Burke, showed how a new technic, "micro-incineration" may be used in the study of sputum when silicosis is suspected. After concentration and digestion with aqua regia, the sputum is centrifuged and the residue dried on slides and incinerated. Silica particles are detected by misroscopic examination in polarized light. In Dr. Burke's experience the particles were present with considerable regularity in silicosis and absent in the absence of this disease, and he felt the technic was comparable in value to the search for acid-fast bacilli in tuberculosis.

Research: The section meeting of the final morning was opened by Dr. W. C. White, Chairman of the Committee on Medical Research of the National Association, with a review of the activities of the Committee and the various investigators and institutions coöperating with it. He pointed uot that the number of coöperating institutions had been very large, and listed results of immediate practical significance, such as the work on standardization of tuberculin and x-ray technic, and also results in basic studies of general fundamental application.

PRESIDENT'S PAGE

Sterilization in West Virginia

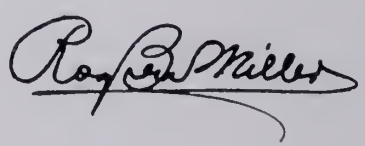
On July 11 the Public Health Council of West Virginia, in session at Wheeling, ruled that the state sterilization law gave the heads of the various state institutions the right to petition the council for permission to sterilize inmates who are epileptics, idiots, feeble-minded, imbeciles or insane. The West Virginia sterilization law was passed in 1929 but it has never been applied because many of the details have not been sufficiently studied.

The board's ruling paves the way for inaugurating a program for sterilizing the mentally unfit in this state. The statute provides a fair trial for all those on whom sterilization operations are anticipated. Hearings are held in the counties where the patients reside.

Three of the four insane hospital superintendents were present at the Wheeling meeting and took part in the discussion of the West Virginia sterilization law. It was pointed out that more than 400 inmates of the four insane hospitals should be subjected to sterilization. West Virginia is one of 27 states that have sterilization laws.

Dr. Albert H. Hoge, Bluefield, President of the Public Health Council, announced that the council would hear petitions on sterilization cases.

West Virginia's sterilization law is a typical example of what happens when those who sponsor new legislation fail to follow it up with enforcement. For the past five years West Virginia has had a sterilization law in name only. I am glad to see the Public Health Council take official recognition of this statute and, as long as it is on the books, endeavor to see that the will of the legislature is carried out.



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MR. JOE W. SAVAGE.....Charleston

THE BARBER BILL

With the recent appointment of a West Virginia Board of Barbers and Beauticians, the Barber bill passed by the 1933 legislature is just now going into full force and effect. Under the terms of this measure, every barber and beautician in the state must undergo an annual physical examination, including a Wassermann test.

The Public Health Council at Wheeling last month ruled that the laboratory tests could not be made by the state laboratory. It was the intention of the Council that the laboratory work should go to the private laboratories, just as the examinations should be done by the private physicians. In other words, the entire matter was divorced from the state health department. In keeping with this ruling, Dr. A. E. McClue, State Health Commissioner and ex-officio secretary of the Barber board, ruled that laboratory tests made by the state health laboratory would not be accepted by that board.

About two weeks ago the barbers and beauticians of West Virginia began to take their examinations. More than 50 requests were made to the state laboratory by private physicians to do Wassermann tests on barbers and beauticians. These physicians urged, and in some instances insisted, that the laboratory do this work. Dr. McClue's refusal brought him severe criticism from several members of the West Virginia State Medical Association.

The JOURNAL feels that Dr. McClue is to be highly commended for his vigorous stand against the inroads of public health into the private practice of medicine. There is no more reason for the state laboratory to do tests for barbers and beauticians than for the various health units to give the barbers and beauticians free physical examinations. In the first instance, the state laboratory would compete against the private laboratories. In the second instance the state health department would compete against the private practice of medicine. If the first is right, so is the second. If the second is wrong, so is the first. In other words it is not logical to assume that the examination of barbers and beauticians is a public health matter from the laboratory standpoint and not a public health matter from the physicians' standpoint.

Again we compliment Dr. McClue and the Public Health Council for the position they have taken in this matter.

REVEALING A DIAGNOSIS

In carrying out the medical service program of the West Virginia Relief Administration, physicians in presenting their bills for payment are asked to give the diagnosis of the patient who has been treated. Several physicians have written in to know what action, if any, might be brought against a doctor for giving what is usually considered confidential information.

This question was turned over to the Association attorney, Mr. R. G. Kelly, for study. Mr. Kelly recently advised that a doctor could not be held liable for divulging such information. His letter follows:

"The liability of a physician for divulging information arises from a confidential and contractual relationship existing between doctor and patient. When a patient comes to a doctor through the relief administration, he comes in a different way and a different contract is created. A condition of that contract is that the patient submits to and agrees to such regulations as might be made by the

relief administration which sent him to the doctor and which pays the bill.

"As a matter of fact, the contract might be considered a three party contract. The doctor performs the work for a consideration. The patient is a beneficiary of the contract. The relief administration pays the consideration and receives the service it desires. It would not seem to be reasonable to require a doctor to respond in damages to one party to the contract for divulging information to another party to the contract when the contract to which all three are parties requires the doctor to give such information."

EXPERT MEDICAL TESTIMONY

There has been a great deal of comment in recent years in regard to the conflicting opinions of physicians in legal suits. Physicians do, of course, disagree on the witness stand in their respective opinions. The fact that they do disagree has brought forth a considerable amount of criticism from members of the legal profession.

Dr. William C. Woodward, Director of the Bureau of Legal Medicine of the American Medical Association, was recently asked to speak on this subject before the West Virginia Bar Association at Parkersburg next September. Because of a prior engagement, Dr. Woodward was compelled to turn down the invitation. In replying briefly to the invitation, however, Dr. Woodward wrote in part:

"I believe that the dissatisfaction that lawyers entertain with reference to the medical profession is based on misunderstanding and is susceptible of easy explanation. Physicians, of course, often do not agree. Their disagreements, however, are probably no more frequent than are disagreements among lawyers. In fact, they are probably less frequent, for if lawyers did not disagree there would be little or no use for courts. Even the elite of the legal profession, as represented by the Bench, disagree on matters of law, and the body of lawyers of the highest standing—the Supreme Court of the United States—not infrequently finds itself incapable of agreeing on a construction of a man-made statute and on its application to a given set of facts. Certainly, the medical profession does no worse.

"So far as expert witnesses are concerned, it must be borne in mind that no expert witness ever put himself on the witness stand. Some lawyer put him there, and he did so with the full approval of some judge. If the witness is incapable or crooked, the lawyer either knows it or ought to know it before he offers him as a witness; otherwise the lawyer is incapable or negligent . . . . Under such circumstances, if incapable or dishonest expert witnesses are ever given opportunities to testify, the fault lies with the legal profession . . . . That honest and capable expert witnesses should differ in their opinions is, however, no reflection on the Bench, the Bar or the medical profession."

Dr. Woodward has answered a question that the members of this Association have puzzled over for a good many years. The doctors might, upon occasion, relay his answer to their friends in the legal profession.

WHEELING CLINIC ANNIVERSARY

Approximately 200 physicians from West Virginia, Ohio and Pennsylvania attended the Tenth Anniversary of the Wheeling Clinic which was held at Wheeling on July 16. The morning session was given over to golf and to clinics at the Wheeling hospitals.

Speakers on the afternoon program were Dr. C. C. Sturgis of the University of Michigan Medical School, Ann Arbor; Dr. Ralph Pemberton of Philadelphia and Dr. George Pack of the Memorial Hospital, New York City. The afternoon session was held at the Scottish Rite Cathedral.

Dr. Hugh Cabot of the Mayo Clinic, Rochester, Minnesota, was the banquet speaker at the Fort Henry Club that evening. His subject was "Modern Trends in

Medicine" in which he stressed the need for the medical profession to adjust itself to present day changes. Dr. W. S. Fulton, founder of the Wheeling Clinic, also made a short talk at the banquet. Dr. Robert J. Reed, Sr., served as toastmaster.

DR. FRANCIS T. RIDLEY

Dr. Frances T. Ridley, widely known Bluefield physician, died on the morning of July 20 at the age of 52 years. Death was attributed to heart disease. Dr. Ridley suffered from a similar attack last winter but recovered sufficiently to be out. He was stricken again on July 4 and his condition grew steadily worse until his death.

Dr. Ridley had been a practicing physician in Bluefield for 26 years and was one of the best known doctors in Mercer County. He was born in 1882, graduated from the medical school of the University of Virginia, and practiced for a short time in Huntington, Clifton Forge and Fordwick, Virginia, before coming to Bluefield.

The deceased was a member of the Mercer County Medical Society and the West Virginia State Medical Association. He is survived by his widow.

COUNTY SOCIETY NEWS

CENTRAL WEST VIRGINIA

Thirty-five members attended the quarterly meeting of the Central West Virginia Medical Society which was held at the Methodist Episcopal Church, South, in Webster Springs on July 18. Dinner was served by the ladies of the church at 6:30, following which the business and scientific session was called to order.

The essayists of the evening were Dr. Frank S. Johns, Richmond, who spoke on "Treatment of Acute Appendicitis," and Dr. Pierce Rucker, also of Richmond, who spoke on "Rupture of Membranes as a Means of Induction of Labor." Both papers were interesting and well discussed.

The next meeting of the society will be held in Buckhannon in October.

EUGENE S. BROWN, *Secretary*.

FAYETTE COUNTY

The July 10th meeting of the Fayette County Medical Society was held at the Hotel Hill, Oak Hill, with a good attendance. During the business session, the society instructed the secretary to communicate with the Fayette County Court and urge the Court that all dogs be either kept up or vaccinated for rabies.

The scientific program was opened by Dr. M. F. Petersen, Charleston, with a paper on "Hypothyroidism in Infants," which was discussed by Dr. G. C. Hodges and other members present. Dr. Petersen was followed by Dr. William Price Bittinger who gave a case report on "Traumatic Pericarditis with Effusion". Both of these presentations were interesting and instructive.

Dr. G. W. Skaggs, Princeton, recently moved to Dublin, Virginia, where he will practice his profession in the future.

Dr. Thomas A. Lamb, Montgomery, recently moved to Loudon County, Virginia, where he will engage in the practice of his profession.

Dr. H. C. Skaggs and Dr. E. B. Thompson, Montgomery, attended the Cleveland meeting of the American Medical Association.

RALPH HOGSHEAD, *Secretary*.

CABELL COUNTY

Dr. Athey R. Lutz, Huntington, was the essayist at the July 12 meeting of the Cabell County Medical Society with a paper on "Deformities Usually Encountered in the Crippled Child." This was an excellent presentation, the end results being demonstrated with lantern slides. The meeting was held at the Hotel Pritchard.

EDWIN MATTHEWS, *Secretary*.

BROOKE COUNTY

Dr. B. F. Harden of Wellsburg was elected as the new President of the Brooke County Medical Society at the recent meeting and Dr. Ray C. Otte, Wellsburg, was reelected Secretary-Treasurer. Dr. Harden succeeds Dr. J. P. McMullen.

At the same meeting, the society authorized a committee on medical relief to confer with the county relief administrator on matters pertaining to the practice of medicine. The committee is composed of Dr. J. P. McMullen, Chairman; Dr. L. J. Bernstein and Dr. Otte.

RAY C. OTTE, *Secretary*.

LOGAN COUNTY

Dr. Thomas G. Reed and Dr. A. E. Amick, both of Charleston, were the essayists at the June 20 meeting of the Logan County Medical Society which was held at the Aracoma Hotel, Logan. Dr. Reed presented a paper on "The Early Diagnosis and Treatment of Syphilis." Dr. Amick's paper was on "Infantile Diarrhea." Both papers were discussed by members of the Society and very much enjoyed.

V. A. DEASON, *Secretary*.

MONONGALIA-PRESTON

A joint meeting of the Monongalia and the Preston County medical societies was held at the Hopemont Sanitarium on the evening of July 6 with a splendid attendance of members of both societies. A number of visitors from the northern section of the state were also in attendance. Prior to the scientific program, dinner was served at 6 o'clock to the visiting doctors.

The scientific program was presented by Dr. David Salkin of Hopemont with a paper on "Intestinal Tuberculosis," and by Dr. G. L. Leslie, Superintendent of the Michigan State Sanitorium at Howell, Michigan, with a paper on "Collapse Therapy in the Treatment of Pulmonary Tuberculosis." Both of these interesting and instructive papers were freely discussed by the doctors in attendance.

KANAWHA COUNTY

The following resolution concerning list hospital practice in Kanawha county and vicinity was passed by the Kanawha Medical Society at its regular monthly meeting on June 19:

WHEREAS, the By-laws of the American Medical Association state:

"It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interferes with reasonable competition among the physicians of a community, and

WHEREAS, the By-laws of the West Virginia State Medical Association state that:

"The principles of medical ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public"; and

WHEREAS, the By-laws of the Kanawha Medical Society provide that:

"List practice within the city of Charleston or its immediate vicinity, shall be considered a violation of the code of ethics of the Society and unprofessional. Any member accepting such a list . . . . automatically loses his membership. He shall however be notified by the Secretary, in writing, and if such list is dropped he can by a majority of those members present be reinstated to membership."

WHEREAS, the Council of the West Virginia State Medical Association, at Huntington, on May 15, 1934, passed the following resolutions:

"*Now, Be it Resolved:* That the council of the West Virginia State Medical Association, does hereby condemn the methods used by these hospitals that enter into contracts with employers of labor who require their employees to contribute to a fund to defray hospital, medical and surgical service for industrial injuries that properly belong under the State Compensation Department, and

"*Be it Further Resolved:* That the individual county societies take such action as may be considered necessary by them to correct this and any other abuses that now exist or that may later develop in connection with list practice"; and

WHEREAS, the Kanawha Medical Society desires to observe both the letter and spirit of the foregoing national, state and local by-laws, and particularly the recommendations of the Council of the West Virginia State Medical Association:

Now, Therefore, Be it Resolved: That the Kanawha Medical Society goes on record as opposing the practice of "List Hospitalization" as now conducted by the hospitals of the city of Charleston, and all hospitals within the jurisdiction of the Kanawha Medical Society; and

Be It Further Resolved: That the Kanawha Medical Society goes on record as opposing not only the list hospitalization of industrial accidents that properly belong under the State Compensation Department, but also the hospitalization of all patients wherein the hospital contracts to furnish medical and surgical care, it being the sense of this Society that such hospitalization of all patients by contract removes from the individual patient the free choice of physician, thereby violating the letter and spirit of the By-laws of the American Medical Association, and

Be It Further Resolved: That the Kanawha Medical Society is not opposed to the present system wherein a company doctor, who resides at a coal camp, holds a list at such camp for the em-

ployees thereof, provided, however, that the holders of such list actually resides at the camp; and

Be It Further Resolved: That a committee of five be appointed by the President of the Kanawha Medical Society to confer with industry, labor, and with the various list hospitals, which committee is to coöperate with a similar committee of the West Virginia State Medical Association in order to work out a satisfactory solution of this problem.

A. M. A. PROCEEDINGS

(Editor's Note — Following is an abstract of the proceedings of the House of Delegates of the American Medical Association at the Cleveland meeting.)

The House of Delegates of the American Medical Association convened in the ballroom of the Hotel Statler, Cleveland, at 10 o'clock on the morning of June 11 and was called to order by the Speaker, Dr. F. C. Warnshuis. Following adoption of the minutes of the Milwaukee session, the address of the Speaker was presented. Dr. Dean Lewis, President, was then introduced. His address was followed by the address of the President-elect, Dr. Walter L. Bierring. Both Dr. Lewis and Dr. Bierring talked on the varied present-day problems of the medical profession.

Reports of officers and committees included the report of Dr. Olin West, secretary, the Board of Trustees, the Judicial Council, the Council on Medical Education and Hospitals and the Committee on Legislative Activities. The last named report, made by Dr. E. H. Cary, follows:

Your Committee on Legislative Activites has been consistently engaged in defending the position of the American Medical Association, as formullated by this distinguished body in previous sessions. For the sake of brevity we will discuss only veterans' legislation and call your attention to the report of the Board of Trustees, which recounts some of the other work of this committee.

You recall that during the preceding national administration the medical profession opposed the continued building of veterans' hospitals which were to be used for the care of veterans who were not disabled during the World War.

In 1931 your committee, with Dr. C. B. Wright as chairman, met in Washington. At this time, in company with Drs. West, Woodward, Shoulders, Johnson and Meyerding and representatives of the American Hospital Association, we made known the medical point of view to the leaders of the American Legion in Washington, to the officials of the Veterans' Bureau and to members of the national Congress. We conceded the need of veterans' hospitals to care for nervous and mental diseases and did not oppose government hospitals for the care of veterans with advanced tuberculosis.

Later Dr. W. C. Woodward and I, in cooperation with representatives of the American Hospital Association, appeared before a special joint committee appointed by both houses of Congress and presented many facts concerning the medical profession and its relation to hospitalization, particularly stressing the ultimate effect which an increased hospital construction program would have on our profession.

From our contacts, we came to believe that influences were being developed which would successfully oppose any plan that required the government to continue building hospitals and broadening hospital gratuities to an ever increasing number of veterans without service disabilities. We were particularly insistent that those financially able to care for themselves should be treated at home by their home physicians. Attention was called to the abuse of the hospitalization privilege by the financially independent veteran, who was frequently transported long distances at governmental expense and paid approximately $85 monthly in the hospital, rendering it very difficult for the doctor to cure him. Attention of the committee was also directed to the demoralizing effect on the recipient and the welfare of the medical service in a locality, this medical service being made more difficult to sustain, and the withdrawal of this support from the medical service in a given community, thereby affecting seriously the future health and happiness of large groups of our citizens.

The present administration publicly expressed many views on this subject which were in harmony with the principles adopted by the members of this House of Delegates. The administration evidently recognized that there had been no definite policy established relating to veterans of the late war and that many abuses were the outgrowth of haphazard legislation and Veterans' Bureau regulations.

The need of a balanced budget made necessary an economy program that included a definite policy regarding veterans. We were greatly comforted to find that the present administration, supported by the director of the Veterans' Bureau, contem-

plated no further building of hospitals and outlined a policy which, as stated before, we found in harmony with our views.

In February, 1934 the chairman of your Legislative Committee, with the two members, Drs. C. B. Wright and F. S. Crockett, met Drs. Olin West and W. C. Woodward in Washington to oppose the Reed amendment, which comprised the four-point program of the American Legion. We were particularly interested in the second point of the Legion program which related to hospitalization and which, as written, would have required only a written statement from the veteran that he was financially unable to pay for needed care. We could see that if the law permitted an unsupported statement it might lead to multiplied abuse of hospital and transportation privileges.

Your committee was in Washington for four days, making many contacts, broadening our acquaintance among members of both congressional houses, and developing friendships here and there which we hoped would be useful in preventing legislation not in the interest of the people and detrimental to the medical profession.

Unfortunately, some weeks following our activity in Washington, House of Representatives Bill 6663, the Independent Offices Appropriation Bill, was amended combining two issues, one of which concerned the veterans. This readily became a political measure of profound significance and it was not long until it became a law (March 28, 1934) after having been passed by the House of Representatives and the Senate over the President's veto.

Section 29, of the law reads as follows:

Section 29, Section 6 of Public Law Number 2, Seventy-third Congress, as amended by Public Law Numbered 78, Seventy-third Congress, is hereby amended by adding hereto the following proviso:

"Provided, that any veteran of any war who was not dishonorably discharged, suffering from disability, disease, or defect, who is in need of hospitalization or domiciliary care, and is unable to defray the necessary expense therefor (including transportation to and from Veterans' Administration facility), shall be furnished necessary hospitalization or domiciliary care (including transportation) in any Veterans' Administration Facility, within the limitations existing in such facilities, irrespective of whether the disability, disease, or defect was due to service. The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses."

This law made several changes. It made statutory certain privileges already granted by executive order. It limited, as you have seen, hospitalization to those who were willing to make oath as to their inability to pay for medical care. A very important feature of the new law is the discontinuance of money payments to the veterans while in the hospital.

As you know, the American Medical Association has consistently taken the position that the federal government ought not to provide medical, nursing and hospital services for veterans who are able to provide such services for themselves for injuries and diseases in no way related to military service.

The present law goes beyond anything heretofore contemplated in that it provides for free care for non-service disability. Under the World War Veterans' Act, 1924, under which the gross abuse of medical, nursing and hospital privileges for veterans, rich and poor alike, suffering from non-service diseases and injuries grew up, hospitalization was absolutely and unqualifiedly discretionary with the administrator of veterans' affairs, except so far as related to certain named chronic diseases.

The World War Veterans' Act, 1924, section 202, subsection 10, provided:

The Director is further authorized so far as he shall find that existing Government facilities permit, to furnish hospitalization and necessary traveling expenses to veterans of any war, military occupation, or military expedition since 1897, not dishonorably discharged without regard to the nature or origin of their disability: Provided, that preference to admission to any Government hospital for hospitalization under the provisions of this subdivision shall be given to those veterans who are financially unable to pay for hospitalization and their necessary traveling expenses.

If under the proviso set forth above, any effort was ever made to classify applicants for hospitalization at the expense of the taxpayers generally, in the order of the ability of the applicants to pay for medical, nursing and hospital services, it was never apparent. As a matter of fact, veterans themselves resented the inquiry into their financial resources and any implication that hospitalization at the expense of the taxpayers generally was given them because of their need and not as a matter of absolute right. It was under this strictly permissive clause in the act of 1924 that the hospital building program of the Veterans' Administration, costing tens of millions of dollars, developed and was carried into effect.

From our experience in the past we hope that the Veterans' Bureau will be able to resist prescribing a form which would liberalize the amended law beyond interpreting the oath to mean that the veteran is in actual need.

We certainly must see that the regulations will make it extremely difficult for a veteran to accept charity when he is able to pay something to his home doctor and community hospital for services

required. We should oppose a loose construction of law which would enable a veteran to escape his civic responsibility.

Can we not assume that the majority of veterans will agree with the citizenship generally that this law should be interpreted for the needy and that an oath to the contrary should not be lightly regarded?

Our attention has been called to the plan now in effect in Illinois. Dr. Fredrickson in collaboration with Dr. T. B. Williamson has organized a medical commission composed of district, county and post surgeons of the Illinois Department, American Legion. This commission acts as advisers to the Rehabilitation Committee in the interests of the ex-service men. Its great success has been in improving this service while preserving the worth while ideals of the medical profession. Since all problems involving compensation are medical problems, it is to the best interest of the ex-service men and the medical profession that this service be rendered by doctors who have a broad understanding of all the interests involved. An adoption of this Illinois plan by other legion departments would promise much for a closer coöperation between these two great organizations.

If we perform our full duty, and as individuals work faithfully, we shall develop a strong sentiment in favor of rendering governmental aid where it is actually needed. No one will be better able to bring about coöperation than the post surgeon.

For the present there has been no effort to bring about increased hospital facilities, and without an increase of such facilities the evil effect on the profession will lessen, because many of these hospitals will be diverted into domiciliary homes.

On the other hand, if the oath required by the law, wherein the veteran swears his inability to defray necessary expenses, is treated lightly we shall then be confronted with a serious situation. We should now help to create a sentiment of merited scorn for the veteran who is willing to cheat and accept gratuities from his government which is already burdened with indigence rampant in every direction. This sentiment must be widespread or a new program of hospital building will be launched to meet the demand from sources able to pay for medical care.

We should encourage those fine leaders in the American Legion who do not desire to further a program which is morally and financially destructive to the American people and disastrous to the voluntary hospitals and to the medical profession.

In closing, we would like to commend the medical leaders of the states who have influenced rather definitely their representatives in Washington. At the head of this list comes Virginia, whose representatives, we are glad to report, supported the veto of the President 100 per cent.

We are convinced that if medical men throughout the country would become interested in the candidacy of those who, regardless of party, hold views in harmony with our profession it would not be long until we would have in Congress a very positive influence.

Such influence cannot be created over night. It can be greatly developed at this season and definitely crystallized in the November elections . . . . if the members of the medical profession will rally to their duty.

No legislative committee can be stronger than the will of the profession and this professional will to stand together and fight the battles for the future of medicine. This sentiment must be inculcated into the minds of every doctor in this land.

We firmly believe that it requires persistent effort on the part of the leaders of every state in presenting this problem to each and every unit of the national organization.

If our profession is to be effective in state legislation and in the halls of Congress, politicians must learn of our solidarity, of our deep interest in the progress of the science of medicine and of our determination to preserve the integrity of its application in the interest of human beings, all of which makes it essential that we protect the welfare of the profession as a whole so that its dignity and its rights and privileges shall be preserved.

Under the head of new business, resolutions were introduced and referred to various committees for study, to be taken up by recommendation at a subsequent session.

The House of Delegates convened in executive session at 2:15 o'clock on Monday afternoon, June 11. Dr. J. H. J. Upham, Chairman, submitted for consideration by the House of Delegates an official statement of the Board of Trustees. It was moved and carried that the matter be referred to a special committee for report at an executive session on Tuesday afternoon, June 12.

The House of Delegates was called to order at 9:30 o'clock on the morning of June 12 with Dr.

F. C. Warnshuis, Speaker, presiding. Dr. Charles E. Mongan, Chairman, presented the following report of the Reference Committee on Legislation and Public Relations:

1. Your committee heartily approves of the excellent work done by the Bureau of Legal Medicine and Legislation in the matter of N I R A legislation and urges the Bureau to continue to watch the development of codes likely to affect the practice of medicine, and especially to endeavor to protect the physician engaged in the practice of röentgenology.

2. Federal Emergency Relief Administration: Your committee commends the interventions of the Bureau in the development of emergency medical relief service and approves of its acts; your committee recommends that the proper agency of the American Medical Association make an early survey of conditions existing at this time with a view to correcting discrepancies in the service and making possible improvements.

3. Your committee would point to the fact that the freedom of choice of physician has been preserved in this service and that for the first time the fact that only the medical profession may properly evaluate medical service has been recognized.

4. Federal Civil Works Administration: This report is historical. The only phase of this service of interest now is the delay in adjustment of claims of physicians for services rendered. This delay is due largely to the need of correction of errors in the reports of physicians who rendered the service. The Bureau should continue in touch with the situation and facilitate the proceedings as much as possible.

5. Hospitalization of Veterans: This report reiterates and presents in compact form the oft repeated position of the American Medical Association on this subject and recommends that it be approved as such.

6. Contract Surgeons of the Spanish-American War: In the light of the report, the contract surgeons of the Spanish-American War deserve special consideration. There is no reason why they should not be given the same treatment as others who rendered the same or similar service, particularly the contract nurses.

7. Library of the Surgeon-General's Office: Your committee approves the observations made in the report and joins in the recommendation that the profession unite in an effort to preserve and protect this institution.

8. Food, Drug and Cosmetic Legislation: The bureaus of the American Medical Association are evidently in close touch with this matter. The position of the Association on the subject is well known and should be reiterated and emphasized. It is well to add to the activities of the Association in this connection the subject of cosmetics and "truth in advertising."

9. Report of Committee on Legislative Activities: Your committee commends the Committee on Legislative Activities for its judgment and acts, particularly with reference to the question of veterans' legislation. Your committee would impress on the several state societies the necessity of educating the public on the science of medicine and the public welfare. Each member of the House of Delegates should feel it his bounded duty to impress on his state society and county societies the importance of individual efforts in this direction.

10. Resolutions on State and Federal Relief Committees: Your committee recommends the adoption of the resolutions, with the observation that not only state relief commissions but county administrations as well should have physicians in their personnel.

11. Resolution on Free Choice of Physician: Your committee finds that the matter referred to is covered by a federal statute (enacted in 1916) and not by rules and regulations. Your committee recommends that this resolution be referred to the Board of Trustees for further consideration and suitable action.

12. Resolutions on Discrimination Against Certain Members of the Medical Profession: The matter was fully covered by the resolution adopted by this House in 1933 as follows:

Resolved, That the American Medical Association in annual session assembled, condemns the persecution of any individual on account of race or religion, by any state or under any flag.

13. Resolutions introduced by Dr. Holman Taylor, Texas, with reference to support of the Army Medical Library: The Reference Committee approves the resolutions and recommends their adoption.

On motions, duly seconded and carried, each section of the report of the Reference Committee on Legislation and Public Relations was adopted, after which the report was adopted as a whole on motion of Dr. Mongan, seconded by Dr. Mather Pfeiffenberger, Illinois, and carried.

Dr. W. F. Braasch, Chairman, presented the following report of the Reference Committee on Reports of the Board of Trustees and the Secretary:

1. Report of Secretary: Your committee notes with much satisfaction that there has been a very small net loss of Fellows enrolled in the American Medical Association for this year. That this loss should be so small in spite of the continued financial difficulties which have seriously affected the medical profession during the past year shows beyond any doubt the great desire of the bulk of the profession to support organized medicine. This fact might be used by secretaries of state and county medical associations as a stimulus to their efforts to increase membership.

Your committee endorses the comments of the Secretary on the value of militant, active county societies in our organization. It should be emphasized that the county society is the backbone of medical organization and medical stability.

We note a growing tendency on the part of the leaders of the medical profession to take a more active part in the affairs of organized medicine. The strength of the state, as well as the county society, depends largely on active participation by its leaders.

Your reference committee wishes to express its commendation of the earnest and sincere work of the Secretary and of the devotion rendered by him to this position in the service of medicine.

2. Your committee believes that the Board of Trustees is to be congratulated on its excellent financial report in spite of present unfavorable economic conditions and the various readjustments that were found necessary in the number and the remuneration of its employees. It is of interest to note that the net profit for the year was approximately only $5,000 and that the total income was but little less than last year.

THE JOURNAL: In keeping with the action taken in all previous years, your committee commends the high character and the valuable influence that the Association maintains under the able management of its present editor. Your committee is glad to note that the recent editorial policies have deviated somewhat from those of the past in that suggestions previously made by the House of Delegates have been followed to an increasing extent during the past year, in regard to devoting more attention to matters of economic interest. It seems to your committee that the high standard of THE JOURNAL has in no way suffered as a result of such action.

While we agree that the main object of THE JOURNAL is in the field of medical science, nevertheless economic problems of fundamental importance are constantly arising which should be discussed and analyzed so that the medical profession might be given at least an abstract of current developments. Your committee believes that this field merits more attention in the columns of THE JOURNAL and that such articles should be displayed so as to be easily assimilated by the general profession.

Your reference committee wishes to call attention particularly to the foreign correspondence in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, a feature that is unique, since there is no other medical publication in the world which maintains similar correspondents in all the leading nations of the world. This service has been of great value in keeping the American medical profession informed accurately of official and economic changes in other countries.

3. Special Journals: Your committee had noted with apprehension in previous years the constantly mounting cost of the special journals. Your committee is glad to note that the cost of publication of the special journals exceeded the income by only approximately $10,000, which represented a marked decrease in the loss sustained in preceding years. The saving in the cost of the special articles has been brought about by more careful selection of illustrations and by closer scientific scrutiny on the part of the editorial boards of material submitted for publication.

Your committee notes with satisfaction that the loss incurred in the publication of *Hygeia* amounted to only $30,000. The indirect good done to the profession by this publication may not be generally appreciated, but it is worthy of our most active support. It is of interest to note that only 14,000 physicians in the United States were subscribers to *Hygeia* last year. A plea should be made that every physician subscribe to at least one copy, which might be found in his waiting room if not in his library.

4. Quarterly Cumulative Index Medicus: Your committee recommends the continued publication of the *Quarterly Cumulative Index Medicus* and is well aware of the good it is doing. In view of the fact, however, that it is being consulted by so many varied interests other than those strictly

related to the profession, one wonders whether the cost of its publication might not be shared by other agencies. Furthermore, we hope that the loss incurred in its publication, which was approximately $44,000 in the past year, may in some way be lessened in the future. Such a publication for the advancement of scientific medicine might well be considered worthy of endowment by those interested in furthering medical progress.

5. Council on Pharmacy and Chemistry: Your committee heartily endorses the ever increasing efficiency and importance of the work done by the Council on Pharmacy and Chemistry, as well as that of the chemical laboratory. We fear that many members of the Association fail to appreciate the important bearing this work has on the progress of the medical profession. We believe that this work should receive continued and unstinted support.

In view of the current economic stress, your reference committee suggests the possibility of a joint study by the Council on Pharmacy and Chemistry and the Bureau of Medical Economics of the costs of proprietary and other remedies employed by the medical profession in the diagnosis and treatment of disease. In many instances the exorbitant price has been a serious burden on the patient.

6. Council on Physical Therapy: Your committee wishes to commend the splendid work done by the Council on Physical Therapy. We are impressed with the care and thoroughness of its investigations and the good it is doing. The Council has been of great help to the medical profession in preventing the exploitation of physical methods and of apparatus that are of doubtful value. Its efforts to educate the profession by means of exhibits and demonstrations, as well as in regulating and controlling manufacturers, are of fundamental importance and deserve great praise. It is to be hoped that the state associations will take full advantage of the various opportunities offered by the Council to augment our knowledge of physical therapy.

Your reference committee would also recommend increased attention by the Council to the problems in physical therapy arising in the practice of the physician.

7. Bureau of Exhibits: The development of scientific exhibits in recent years has been one of the most interesting phases of medical progress. Its educational value is being appreciated by the general profession. As a result of the stimulus given by scientific exhibits at the Association meetings, similar exhibits have been developed at the meetings of several state associations. In many of the sections the Scientific Exhibit has come to be regarded as the pivotal feature of the program, the papers read being more or less of an explanatory and supporting nature.

The Bureau also deserves much praise for the excellent exhibit shown at the Century of Progress exposition in Chicago.

Your reference committee wishes to suggest to the House of Delegates that it express its appreciation to Dr. D. Chester Brown, retiring member of the Board of Trustees, who has been for many years chairman of the Committee on Scientific Exhibit.

8. Committee on Foods: Too much praise cannot be given for the development of the work of the Committee on Foods. Its importance is being widely recognized and its recommendations are being adopted not alone by members of the Association but by the public. Its value as a protection to public health is generally realized and it is rapidly becoming one of the more important activities of the Association. We note with interest its rapid growth and extension into associated fields, as described in the report.

This is one of the necessary functions performed by the American Medical Association until the public generally and the government shall recognize the necessity for such a service on a public basis and assume this liability by legislative enactment.

9. Radio Broadcasting: The far reaching influence of radio broadcasting on medical subjects on public thought is worthy of continued commendation and unlimited support. The pity is, however, that the radio activity on matters of public health and of sickness is not all under the control of the Association.

Your committee wishes to express the appreciation of the American Medical Association to the radio broadcasting chains for offering their facilities and expresses the hope that they will continue to afford such facilities to the Association in the future. At the same time your committee would condemn the increased broadcasting of unestablished remedies directly to the public and urge further activities on the part of the Board of Trustees leading to some type of control over this evil.

10. Field Secretary: Attention has been repeatedly called by the House of Delegates to the

desirability of bringing the central organization of the Association in closer contact with the various activities of the constituent societies. Committees of previous years believed that closer coöperation between the state societies and representatives from the Association headquarters would be of mutual benefit. At the meeting of last year your committee asked that the Board of Trustees consider the advisability of appointing a field secretary.

Your committee appreciates that the decision of the Board of Trustees to the effect that it would be inadvisable to take final action in the appointment of a field secretary at the present time is based on careful consideration.

However, these suggestions have resulted in bringing about a much more intimate relationship between the officers of the Association and the constituent state organizations than had previously existed and, as a result, has added to the loyalty and interest of the profession in the work of the Association.

Your committee notes and approves the fact that officers of the Association and the directors of the different bureaus have extended the work to county and state societies and other organizations, making a total of 500 addresses during the past year.

Although many of the state associations have developed into strong, active organizations, nevertheless there are some state societies that are comparatively inadequately organized. In confirmation, one reads in the report of the Bureau of Legal Medicine and Legislation of this year that in an increasing number of states the cults have scored heavily during the year 1933.

In the opinion of many delegates, particularly those representing some of the smaller and more sparsely settled states, even further support from the Association headquarters would be desirable.

The possibility suggests itself of sending some representative of the central office who has had experience in the ways and means of certain fields, such as legislative activities for example, to study the problems involved and give such counsel as may be indicated.

Another method suggests itself whereby the activities of the Association headquarters might be brought in closer contact with the constituent societies. Many of the members of the House of Delegates have expressed the desire of more active and continued contact with the central office. With the adjournment of the House, official relationship of the Delegates to the Association practically ceases. While it is realized that the obstacles in the way of calling an interim session are many, nevertheless in many quarters the desirability of so doing, particularly in times of danger or of stress, has been expressed. It is true that monthly bulletins issued in recent years have helped to give us some information concerning current problems. Nevertheless, some means whereby the members of the House of Delegates might be kept in closer touch with the activities and the policies of the Association headquarters would be of great value.

Your committee would therefore suggest to the Board of Trustees the advisability of maintaining an informational service on social, medical and economic subjects to be sent monthly as a bulletin to members of the House of Delegates, the committee in charge of the bulletin to include the Chairman of the Board of Trustees, the Secretary of the Association, the Editor of *The Journal*, the Speaker of the House of Delegates, and the directors of the Bureau of Legal Medical Legislation and the Bureau of Medical Economics, this bulletin to be sent monthly to all members of the House of Delegates and alternates regularly certified by the state medical societies.

Dr. George Edward Follansbee, Chairman, presented the followed report of the Judicial Council:

A resolution introduced by Dr. Charles J. Whalen, Illinois, calls attention to a recent action by the Medical Service Board of the American College of Surgeons approved by its Board of Regents, advocating and publicizing a procedure for furnishing medical and hospital care for certain classes of the population. No consideration appears to have been given to policies or procedure previously adopted by the American Medical Association, of which the Board of Regents are members. The American Medical Association is the one organization representing the entire body of physicians constituting the medical profession and by virtue of that fact is the only organization qualified to speak for the varying interests and ideas of the profession as a whole.

Recurring proposals concerning the entire practice of medicine from small sections of the profession without due regard to the policies of the entire profession as represented by the American Medical Association when presented to the public through other channels than the representative body are confusing to the public mind, are harmful to the profession and give aid and assistance to those bodies

and individuals attempting to revolutionize medical practice.

The Judicial Council therefore recommends the adoption of the resolution as follows:

WHEREAS, The American Medical Association, including 100,000 physicians, is the only democratic body representing the organized profession of this country through delegates regularly elected through county and state medical societies; and

WHEREAS, Other medical organizations and groups, representing selected groups of specialists, have from time to time issued pronouncements of policies in the field of medical economics and medical practice, which do not represent the views of organized medicine and which purport to guide the medical profession and the public in the administration of medical affairs; and

WHEREAS, The House of Delegates of the American Medical Association has repeatedly condemned the issuing of such announcements and policies, which seriously embarrass the attempts of this organization to secure adequate care for the health of the American people and to protect the ideals of the medical profession; and

WHEREAS, The Board of Regents of the American College of Surgeons, assembled in Chicago on Sunday, June 10, promulgated a policy including a prepayment plan for medical care, restricted to so-called "approved hospitals" to members of the staffs of such hospitals, and to physicians acceptable to such staffs; and

WHEREAS, This action of the Board of Regents of the American College of Surgeons has been spread to the people of the United States through the public press on the opening day of the annual session of this House of Delegates; therefore, be it

Resolved, That the House of Delegates of the American Medical Association express its condemnation of such tactics and of this apparent attempt of the Board of Regents of the American College of Surgeons to dominate and control the nature of medical practice; and be it further

Resolved, That the House of Delegates request the Board of Trustees of the American Medical Association and the Judicial Council to ask the Board of Regents of the American College of Surgeons, who are themselves members of the American Medical Association, to explain the reasons for their action and to justify the attempt by this small group within a specialistic organization to legislate for all the medical profession of this country, truly represented only by the American Medical Association.

The report of the Judicial Council was adopted on motion of Dr. C. E. Humiston, Illinois, seconded by Dr. Albert Soiland, Section on Radiology, and carried unanimously.

The following resolution was adopted on motion of the Reference Committee on Hygiene and Public Health:

WHEREAS, The health of the citizens of the United States constitutes the greatest asset of the nation, and the responsibility of conserving the health of the citizens and restoring them to health in times of illness reposes in the medical profession; and

WHEREAS, This responsibility is very great, as is evidenced by the high educational and professional standards which physicians are required to meet in the various states of the Union before being permitted to diagnose disease and treat the sick; and

WHEREAS, Satisfactory and safe service of this type can only be rendered after a long and careful study of the causes and symptoms of disease, and that these causes and symptoms can only be determined after an interview with and physical examination of the patient; and

WHEREAS, No rational or safe treatment can be decided on and carried out under circumstances other than those above set forth without danger to the life or health of the patient; and

WHEREAS, For many months past the radio broadcasting companies of the United States have through their various broadcasting stations permitted the exploitation of many drugs, preparations, "patent medicines" and so-called cures, to the radio audiences of America; and

WHEREAS, It has been well established that some of the drugs, preparations and "patent medicines" so exploited are dangerous in the hands of the layman, others are of doubtful value, and in practically all instances their value for the relief of the symptoms and conditions for which recommended have been overstated and are misleading to the public, and

WHEREAS, The symptoms and conditions for which these drugs, preparations and "patent medicines" are recommended may be, and frequently are, indications of sèrious conditions calling for careful study on the part of a well qualified physician in order that a correct diagnosis may be made and the proper treatment instituted before the disease reaches an advanced stage; and

WHEREAS, Radio broadcasting is under the control of the Federal Radio Commission, and the radio is being used to broadcast non-supportable claims and statements regarding a large number of drugs and preparations for the treatment of human ailments; therefore be it

Resolved, That the American Medical Associa-

tion is opposed to the advertising, recommending or in any way exploiting over the radio any preparations, remedies, medicines or appliances for the treatment of human ailments; and that a copy of these resolutions be forwarded to the Federal Radio Commission with a request that in the interest of the health of the citizens of the United States they exercise their authority to discontinue such advertising over the radio. Be it

Resolved, That we favor a central national clearing bureau of the medical profession which shall act as a reference committee to confer and advise the broadcasting systems as to the propriety of accepting commercial programs advertising various proprietary and household remedies. Be it further

Resolved, That physicians use such influence with their coöperation in sending protests to the Federal Radio Commission and to broadcasting stations against misleading and unwarranted medical advertising. Be it further

Resolved, That copies of these resolutions be sent to all members of Congress and the United States Senate so that they shall be thoroughly informed of this menace to the health of our citizens, and that they be urged to pass necessary laws to eliminate these dangers.

The House of Delegates convened in executive session on Tuesday afternoon, June 12, and Dr. Nathan B. Van Etten, Chairman, read the following report of the Special Committee on Sickness Insurance in the United States and a statement of the Board of Trustees pertaining thereto:

The following resolution was submitted by delegates of the Michigan State Medical Society:

WHEREAS, There is substantial evidence that powerful forces and agencies are working toward the development of health insurance in the United States; and

WHEREAS, During the course of its studies of medical economic problems, the Michigan State Medical Society, after a conference with officials of the American Medical Association, found it necessary to send a commission to England to inquire into the subject of health insurance; and

WHEREAS, The commission presented the following report—which has been printed in full in the *Journal of the Michigan State Medical Society*—and placed in printed form in the hands of all of the delegates of this House;

WHEREAS, The report of the commission raises certain grave questions concerning the policy of the officials of the American Medical Association toward health insurance and the effects of this policy

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APPROVED BY THE AMERICAN MEDICAL ASSOCIATION

on the practicing membership of the American Medical Association; and

WHEREAS, The report of the commission was transmitted to the Board of Trustees of the American Medical Association through the chairman in February 1934; and

WHEREAS, The Michigan State Medical Society has received no word nor has it any other evidence that the Board of Trustees of the American Medical Association has considered or acted on the report transmitted in February 1934; therefore be it

Resolved, That in order to avert a repetition in the United States of the disastrous consequences that attended the adoption of health insurance in England, the Speaker of the House of Delegates of the American Medical Association appoint a committee to investigate and consider the policy of the Association toward health insurance and present a report to the House of Delegates.

Your reference committee has reviewed with painstaking interest the report of the procedures of the commission of the Michigan State Medical Society, commends the efforts of the commission to study and digest an important social operation concerned with medical service in England, applauds the sanity of its conclusion and its recorded opposition to the introduction into the United States of any system of health insurance now existing in any country in Europe, because no system conforms at present with all of the policies adopted by the Michigan House of Delegates in July 1933; namely:

1. Free choice of physician by the insured.
2. Limitation of benefits to those of medical service.
3. The control of medical service benefits by the profession.
4. The exclusion of individuals or organizations that might engage in health insurance for profit.

Your committee believes that their principles are basically sound and that they should be included within any further study of medical service to be adopted as the policy of organized medicine.

Your committee regrets the criticisms of policy

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JAMES R. BLOSS, *Editor-in-Chief* . . . . . Huntington

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CORONARY DISEASE*

By G. R. MAXWELL, M. D., F. A. C. P
Morgantown, W. Va.

WHEN our president, Dr. Roy Ben Miller, asked me to deliver the oration in medicine at this meeting, I was much surprised, yet pleased. It gives me opportunity to carry out the mandate of our great profession—"Be useful to others." This has been the foundation and high ideal of the medical profession since the very dawn of its existence.

I came to the conclusion that coronary disease deserves greater attention and closer study than any other condition that confronts the doctor at every turn. Fortunate is the pediatrician, for it is extremely rare that he has to worry about these distressing conditions. The surgeon has too often accepted the diagnosis of the referring physician and failed to make proper study himself, and made "an exploratory operation" trying to find with his knife what he should have found with his head, with disastrous results. This error is still made by surgeons of note, yet owing to the persistent work of clinicians, we are getting our findings on a truly scientific basis, much to the benefit of the men who are working to standardize all our clinical knowledge and diagnosis of these distressing conditions.

The earliest authentic case of angina pectoris or coronary thrombosis occurred almost six hundred years before Christ. It came after an unusually heavy meal—he refused to let anybody have a bite of his supper especially prepared by his friend, the blacksmith. He proceeded to empty the dish intended for several. Shortly after the engorgement he tumbled off his stool dead as a door nail. This was none other than Gotama Buddha, founder of Buddhism.

I was much surprised to find what an innumerable number of papers on coronary disease are found in recent literature. Hyman and Parsonnett reviewed 700 papers in preparing their work, "The Failing Heart of Middle Life," a work of extremely great value, which should be in every doctor's hands. They say:

"With a fuller appreciation of the significance of the degenerative changes normally present in every individual reaching the halfway mark of his allotted span of life, the true diseases of the heart and blood vessels stand out in sharp contrast. The differentiation between the wearing out process and the al-

*Oration in Medicine, delivered before the West Virginia State Medical Association, Huntington, May 15, 1934.

terations effected by disease becomes a special problem for the clinician of this period. Not infrequently the two conditions may run side by side and may defy even the most expert observer to distinguish how much or how little of each component has served to incapacitate a previously useful member of society.

"The past twenty years have witnessed an age of propaganda; no field of human endeavor has remained unexploited. Probably no phase of this public health propaganda has excited more interest among the laity than the problem of heart disease. Presented by the startling fact that heart disease leads all other causes of death, notwithstanding the tremendous publicity given to cancer and tuberculosis, many persons have besieged their doctors to examine them and to allay their fears of sudden death from heart failure. With the daily press constantly relating the sudden demise of some prominent citizen from causes said to be heart disease, the problem is more sharply brought to the attention of the newspaper readers approaching middle life.

"So much attention was devoted to Mackenzie's polygraph that the previously accepted clinical phases of the problem suffered to the extent of almost complete abandonment. No one was more cognizant of this sudden swing of medical thought than Mackenzie himself. He became much oppressed by the adulation given the instrument, the profession overlooking its limitation, and overlooking the great value of the clinical side. A similar wave of unbridled enthusiasm followed the introduction of the electrocardiograph into clinical medicine, and another milestone in the progress of the cardiovascular sciences had been reached and passed.

"It is small wonder, therefore, that a physician confronted by these facts views with some dismay the problem of evaluating a patient's cardiac condition armed only with a stethoscope and a watch to aid him. This is especially true in the patient of middle and advancing years who presents himself to the doctor with the complicated array of symptoms included in the syndrome of the failing heart of middle life. The trained physician may be sufficiently well equipped to render a scientific estimation of a condition unaided."

No character in clinical medicine is more easily identified than the hapless victim in the throes of a typical anginal seizure. With the discovery of the important rôle played by the disease of the coronary arteries in contributing almost similar symptoms to the clinical picture, more or less confusion arose in regard to the true relationship between the angina pectoris of Heberden and coronary thrombosis.

Unquestionably the predominant symptom of the entire malady is that concerned with the pain component of the clinical picture. The peculiar characteristics of this pain immediately differentiate it from all other types of pain to which the human body is subject. Anginal pains and coronary thrombosis pains are very much alike. Anginal pains stop in a few minutes—thrombosis pains last for hours or days or weeks.

There sometimes occurs in individuals suffering from the anginal syndrome a very definite chain of events presaging the onset of a seizure. Almost any part may be the prodromal site. Many patients have a prodromal symptom a minute or two before the attack—time enough to dissolve a nitroglycerin tablet under the tongue and ward off the attack. Patients should stop stark still for a few minutes, breathe deep and long, and use nitroglycerin.

The frequency with which angina pectoris occurs is evidenced by the fact that during a recent period of eight months, 100 new patients with this condition have been seen in private practice by Paul D. White.

In post mortem examination, some degree of coronary and of aortic sclerosis is almost always found. Rarely there is no demonstrable pathology of either aorta or coronary arteries.

Temporary coronary insufficiency with myocardial anoxemia is the most probable

cause of anginal pain. Angina pectoris and coronary thrombosis frequently occur in the same individual, the latter as a complication of the former.

The pace of life in America has reached almost the breaking point; the automobile and telephone have made it possible for business and professional men to accomplish several times as much work as in previous generations and doubtless much more than the average human machine is capable of doing without harm. The load is now too great —both in work and in play.

Angina pectoris is itself a symptom and is generally found alone. Its intensity depends upon three factors: (1) the sensitiveness of the nervous system of the victim; (2) the amount of strain; and (3) the degree of cardiac involvement.

Angina decubitus is a term used to describe the very ominous type of angina pectoris in which attacks of pain occur even when the patient is quiet and recumbent. A dream, conversation, reading an exciting story, slamming of a door, or ringing of telephone or door bell may precipitate attacks in such a case.

The pain of the anginal attack may be atypically located, in which case diagnosis is easily missed. John P. Anderson has seen several patients who had had teeth extracted because of angina and one patient had consulted various otolaryngologists over a period of two and one-half years with the complaint of a tight feeling in the throat. Another patient sought an orthopedist for pain in the shoulder. Most of these patients admitted some pain in the substernal region. Since the diagnosis must depend mainly on the history, it may be necessary to ask leading questions. If these atypical attacks are not recognized, the patients are likely to be regarded as neurotic and urged to disregard their ailment.

An anginal patient must learn how much physical effort he can make with safety. When angina is recognized promptly and when the patients follow instructions, the outlook is much better than we have been led to believe in the past.

Assuming that the symptoms of angina are always due to an anoxemia of some portion of the heart muscle, its avoidance is the primary requisite.

Physical examination in about one-fourth of all individuals with angina pectoris reveals nothing wrong. The diagnosis must be made by symptoms and not by signs.

Any type of heart disease may be associated with angina pectoris—rheumatic, syphilitic, hypertensive, or arteriosclerotic—but evidence of essential hypertension or coronary sclerosis, or both, is most common.

Signs of congestive failure are rare, but it is not infrequent to find a past (not present) history of angina pectoris in coronary disease with failing circulation. All laboratory tests are often normal in angina pectoris.

Complications of nephritis, renal congestion or anemia may be evidenced by urinary and blood tests. But in uncomplicated angina pectoris blood and urine are normal. Exercise tests are rarely necessary or safe.

The course is extremely variable — from sudden death to ultimate recovery, but usually the average duration is five or six years. The commonest complications are hypertension, coronary sclerosis, thrombosis and congestive failure with chronic invalidism.

Differential diagnosis must be made from coronary thrombosis, intercostal neuralgia, neurocirculatory asthenia, indigestion, ruptured gastric ulcer, gall-bladder disease, other heart lesions, pulmonary disease, herpes zoster, traumatic injuries, etc.

Unfavorable facts in prognosis are (1) the very severe nature of the pain in some cases and the ease with which it is induced; (2) the presence of extensive heart disease of any character; (3) heart block; (4) the occurrence of pulsus alternans; (5) inability of the patient to submit to satisfactory treatment, chiefly rest and relaxation; and, (6) the occurrence of serious complications, particularly coronary thrombosis. Generally

speaking, the larger the heart the worse the prognosis.

The most important therapeutic measure is relaxation, both physical and mental. Hurry, worry, overexertion, overeating, and cold stormy weather are to be avoided. The nitrates and nitroglycerin are the classic remedies. Morphine for the severe attacks is essential.

As prophylactics against angina pectoris various measures have been advised. In the first place omission or correction of bad habits —nervous tension, use of tobacco, indigestion, dental infection, etc.—may give surprisingly good results. The synthetic coal tars are safe prophylactics to ward off attacks. Nitroglycerin may be given under the tongue. Surgery in intractable cases has at times given good results.

For the past fifty years or more the use of tobacco in its various forms has furnished material for much discussion both scientific and otherwise, and the most recent teaching is that tobacco is not directly harmful in the majority of cases.

It is this form of heart pain which is most frequently found in women of the middle-age group. This constitutes a new class of patients in the doctor's office and also a new problem before which the phyiscian may stand somewhat dismayed. These society women typify an entirely new group of patients coming within the clinical syndrome of angina pectoris. There have been no fatal instances recorded from even the most severe attacks, and withdrawal of tobacco in whole or in part was ordinarily sufficient to eliminate the condition. There are cases which need to keep up the tobacco habit in a modified form. Mackenzie pointed out that a single cigar might do more good in certain cases than all of the drug sedatives at his command. Too much coffee is harmful but at times it is one of the best remedies we have to aid relief of an attack.

The older and now unpopular starvation methods of diabetic treatment are to be recommended in those cases where angina pectoris makes its appearance when insulin is administered. Too carefully controlled insulin doses in elderly diabetics are dangerous because of the production of coronary symptoms due to the lack of available glucose in the blood.

Pain is not a conspicuous feature of valvular heart disease. Wenckebach says only sound hearts have angina.

Such are the more remote predisposing factors concerned in the evolution of the anginal syndrome. In susceptible individuals one or another of these various remote causes may assume dominant positions in specific instances. Alone or in combination with each other they must be carefully evaluated in every patient presenting the symptom complex of angina pectoris. Recognition of these factors may do much to ease or even forestall the tragic consequences of this serious malady.

Medical literature is replete with references to the familial tendency of angina pectoris. Every physician can recall from his own experience certain families where angina pectoris makes its appearance with relentless punctuality.

Primitive people have few cases of angina pectoris. Our own negroes are almost entirely free from it. Jews are especially prone to this disease. The relative immunity of individuals living in the warmer climates to the development of angina pectoris has long served as a clinical basis for therapy.

For the past sixty years the use of nitrates has been an almost universally accepted practice in the treatment of angina pectoris, and probably no other remedy has enjoyed such widespread and unopposed popularity. Nitroglycerin is probably superior, however.

The problem of drug therapy in such instances should not present any serious difficulties; the patient is to be treated without regard to the anginal syndrome. This is a simple solution to the controversial position of digitalis in patients with angina pectoris. Where there are symptoms of edema and general evidences of the failing heart, digi-

talis should be employed in full therapeutic dosage; where there are less marked symptoms of a failing circulation, yet the patient exhibits an impaired cardiac function, small "tonic doses" of digitalis as recommended by Christian may prove to be of benefit. Quinidine therapy finds little place in this group.

Regardless of the position assumed by the patient, he should be left severely alone except for such assistance as may be needed to help him maintain this position. He should not be annoyed with questions nor asked for details. Visitors and solicitous demeanor may further tend to enhance the discomfiture of the patient, as he sees mirrored in their faces nothing but terror.

Hot applications are best physiotherapeutic measures. Nitroglycerin must be administered. The drug apparently acts more promptly when allowed to dissolve slowly under the tongue. Amyl nitrate is perhaps the next most frequently used drug. Morphine may have to be used.

"Bleed the patient in his own vessels" is the old dictum in high blood pressure with actual or threatened paralytic stroke. This is done with veratrum viride. We all know the immediate effect of this drug on puerperal eclampsia. Its wide range of usefulness is too little appreciated by many physicians. Its immediate action is to relax the involuntary muscle fibres especially in the blood vessels, and the blood pressure is lowered, and the threatened disaster is warded off. "Keep the pulse in the seventies, better in the sixties" is the instruction in threatened cerebral hemorrhage. Combined with gelsemium and pulsatilla it has been the standard treatment for high blood pressure, and has been more satisfactory than any other. This has been satisfactory in coronary disease as it lessens the tendency to sclerosis. Veratrum is extremely satisfactory in all spastic conditions. Doubtless angina pectoris is due to spasm of the coronary arteries, thus cutting off the blood supply and producing the anoxemia of the heart muscle. Doubtless the cause of an attack of angina brought on by exposure to cold wind is due to contraction of the pores of the skin shutting off the absorption of oxygen, thus producing anoxemia so that the attack comes on.

In summary, the drug treatment of angina pectoris must resolve itself into the subdivision of relief to be obtained during the acute seizures and the prevention of subsequent attacks. The ideal remedy for either is still to be sought; for until the exact and unchallenged cause for the syndrome is discovered, treatment at best must be based entirely upon empirical results.

It must not be forgotten, however, that all these procedures are not cures for the anginal syndrome. At best these may be regarded as offering some measure of relief for a progressive and chronic affection of the heart.

The *Archives of Internal Medicine* has recently reported series of cases treated by thyroidectomy. There has been a remarkable improvement in these cases. Some of them seem to be perfectly free from all symptoms of angina pectoris, and have resumed work in their several occupations. The basal metabolic rate in every case has been greatly lowered. The outlook is very encouraging.

There are reasons why patients with a normal metabolism who suffer from congestive heart failure or angina pectoris might show striking improvement if the metabolic rate were significantly lowered. The heart of such people might be unable to supply enough blood for the ordinary demands of a normal metabolic rate, but nevertheless might be able to supply enough blood for a reduced metabolic rate. Results are reported of producing a subnormal metabolic rate by thyroidectomy on three patients who were suffering from severe congestive heart failure but who showed no evidence of disturbed thyroid function, and on one patient with angina pectoris with a slight elevation of metabolism but with a normal gland. In the patients studied, the signs and symptoms of circulatory insufficiency and of angina

pectoris had persisted for a considerable time in spite of all known medical procedures. The clinical condition of each patient was accurately studied during a long control period in order that any change following thyroidectomy could be attributed confidently to the effect of the procedure.

Patients with normal metabolic rate may be unable to supply the heart with blood, but if the metabolism is lowered the blood supply is sufficient, and the signs of heart failure and angina pectoris disappear promptly when thyroidectomy is done. There has been sufficient work along this line to hold out high hopes that removal of the thyroid will do great service in lowering metabolism sufficiently to ameliorate or cure many cases of intractable anginal and coronary sclerosis cases. But let us not rush our cases to the surgeon as soon as we make a diagnosis of elevated metabolism.

We may be on the threshold of some really great discovery for the prevention or cure of these baffling heart conditions, some discovery that may have as beneficial effect on angina pectoris and coronary diseases as antitoxin on diphtheria, typhoid serum on typhoid fever or insulin on diabetes. Indeed angina pectoris may be due to some dysfunction of the endocrines.

Arteriosclerosis possibly may be due in part to the under activity of the reproductive organs, as sclerosis does not generally come on until these glands begin to lose their active function. Study along this line might pay. Doubtless an imbalance of the glandular system enters into every case of angina pectoris, but just what it is has not been worked out.

It is an established fact that arteriosclerosis is in part due to the absorption of toxins from the gastrointestinal tract over long periods of time and that proper care of the eliminating functions greatly lessens the sclerotic process. This we should keep constantly in mind in our daily contact with our patients.

When one speaks of coronary artery disease, it is well to remember he is not speaking of a disease entity, but only of the immediate effects upon the heart of a more generalized disease—arteriosclerosis. Only too frequently those presenting essentially cardiac symptoms die of arteriosclerosis in other organs, apoplexy, uremia, peripheral gangrene. Calcified coronary arteries have been demonstrated prior to death by two Boston physicians—Paul H. Wasiken and Merrill C. Sosman. The recent discovery of collateral circulation of the coronary arteries has done much to give us a better understanding of coronary disease.

Acute coronary occlusion, when it is the result of thrombosis of a relatively rapid development, is frequently preceded by a longer or shorter period of angina pectoris in its various forms. Yet the occurrence of coronary blockage is generally accompanied by symptoms which are unique in the patient's experience. Though he may be familiar with the sensations produced by his angina, the overwhelming nature of this new attack is often diagnostic. In many instances it awakens him from sleep or comes on when he is sitting quietly in a chair.

If the patient is accustomed to employ certain measures for the relief of angina, he is likely to try them on this occasion. But he finds that the nitrates are of no avail, and that, whereas he has heretofore found comfort by keeping quiet, he now may wish rather to walk about, gripping his chest, seeking air, or attempting relief by vomiting, remedies for indigestion, or purgation. No position can he find which is at all satisfying or helpful.

The pain is generally of extraordinary intensity. It is described as pressing, squeezing, boring, tearing, burning, sharp, dull, cramp-like, choking, gripping, "like indigestion," vise-like, stifling, etc. Characteristically it is a persistent oppressive pain, but at times it tends to remit and recur at intervals. The pain is but slightly, if at all, relieved by nitrates, and responds only to large doses of morphine. In fact, nitrates should not be used at all as they lower the blood

pressure and thus increase the shock. In some cases a general anesthetic is absolutely necessary. Oxygen continuously when available, and glucose intravenously to maintain heart nutrition are recent means of treatment. Many more thrombosis cases get well than die. Still more can get well if modern therapeutic measures are carried out early.

In association with the pain or as an independent and primary condition dyspnea is the next most obvious complaint. When deep respiration increases the intensity of the pain, there is an added tachypnea by which rapidity of breathing is made to compensate for lack of depth. Respiration, however, may be of the deep "air hunger" type. Occlusion occurring in the course of congestive heart failure is more apt to cause an increase in dyspnea than the typical pain. Orthopnea is fairly common. It may, however, be the accompaniment of acute pulmonary edema or acute emphysema often seen during the attack.

During the progress of the disease there may appear typical attacks of cardiac asthma with prolonged wheezing expiration but very little moisture in the lungs.

The gastrointestinal symptoms have generally been called "acute indigestion," or "ptomaine poisoning," or "gall-stone colic," or "appendicitis."

In no disease is there such a development of apprehension and feeling of threatened dissolution as in coronary occlusion. An additional factor seems to be the extreme weakness which overpowers the sufferers. The victim of coronary occlusion presents a picture of acute distress. The facial expression is found in no other disease, and the body is bathed in cold sweat. The patient may be extremely restless or he may be immobile.

A common finding in the chest is acute emphysema with wheezing respiration in which the lungs show diffuse moist râles. In all cases of moderate or severe infarction there is evidence of congestion at the lung bases. This develops within a short time of the onset and may progress rapidly to fatal edema. Massive collapse of the lung has been described in this condition.

In cases seen early in coronary occlusion remarkably little may be found on examination of the heart. The abdomen is frequently distended and tender, especially in the epigastrium or upper quadrants.

One of the most characteristic signs of acute coronary obstruction is the fall of blood pressure. This is usually seen within a few minutes or hours. Fever appears a few hours after the onset. Leukocytosis of a marked degree comes on, especially following hemorrhagic infarct of the lung. Later a pericardial friction rub develops. Arrhythmias of various kinds come and are better demonstrated by the electrocardiograph than clinically.

The differential diagnosis of coronary occlusion at times presents considerable difficulty. The condition is confused chiefly with severe angina pectoris or acute abdominal disease, as cholelithiasis, acute pancreatitis, ruptured peptic ulcer, and mesenteric thrombosis.

Levine has found that patients with angina in whom the low blood pressure persisted after recovery from coronary closure were much more likely thereafter to be free from angina. It is not unusual, however, for angina pectoris to develop after coronary thrombosis. Fatal embolism is frequently seen.

The outlook in acute coronary occlusion is always grave. During the most acute period, and usually for some time after it, the patient's life is in the balance, and only a general prognosis can be given. With gradual improvement a few signs are helpful. The return of the temperature and white count to normal, decreases in congestive failure, and improvement in heart sounds are very suggestive of progressive compensation. Of equal importance are the blood pressure changes; gradual rise in the systolic level is a good sign. Further help is found in the electrocardiograph, which,

with the recent development of chest leads helps us materially in our diagnosis.

Probably it is not good treatment to keep every case of coronary thrombosis in bed many weeks. It might be well to study the condition and temperament of every patient, and judge just which ones should be confined to bed a long period. The nervous temperament and self-control of each one should be studied, and the patient confined in accordance to our best judgment.

There are cases of coronary thrombosis without pain. Dr. Davis, assistant professor of medicine at the Northwestern University medical school made a study of a series of cases, and a large percentage had coronary thrombosis without pain. Instead they had abrupt onset of dyspnea, paroxysmal or continuous unprovoked by exertion. They had shock, lowered blood pressure, disordered or weak heart action, fever, leucocytosis, pericardial friction rub or embolic complications. Death may come in a few hours or days after ventricular fibrillation or rupture. There may be a partial recovery after long convalescence, usually less than two years, and death follows by an intractable heart failure. In Aubertin and Lereboullet's series, twenty per cent had the painless syndrome. Records in Alexian Brother's Hospital, Chicago, fifty per cent of the coronary thrombosis cases had abrupt onset with dyspnea, unprovoked by effort, without any pain whatever.

In the Department of Pathology at Northwestern University in six years, there were fifty-three cases in which the diagnosis was confirmed by necropsy, there were twenty-one giving history of pain, twenty-one with history of no pain, and eleven sudden deaths with no history at all. These histories show more than forty per cent had no pain.

In closing I want to reiterate what I said in the beginning, that my every thought has been to fix strongly in our minds the necessity of studying every manifestation of approaching disease, and strive to avert its dangers.

We owe an obligation to each other in the profession to keep ourselves closely affiliated, helping each to be more adept in finding better ways and means of discovering the approach of disease and forestalling its ravages. The closer we can work together in our clinical findings the better will our work be to the patient. The good of the patient is the prime object of the medical profession. This is the whole aim of the teachings from earliest dawn of human evolution. Let us not fail to keep up these high ideals and work constantly for their development.

Recently I saw a patient who has had three abdominal sections, one for appendicitis, one for gall-stones, and one "exploratory." He still has the same abdominal syndromes. None of the operators had discovered that the probable cause of all these attacks was coronary with pain referred to the abdomen. I saw also, a typical case of coronary thrombosis which had been treated for months for intercostal neuralgia.

As I said at first, I wish to insist that our diagnostic acumen be centered on the patient, and not too much in the laboratory rooms. To insist that we should study each case in its minute details as if his life and welfare depended absolutely on ourselves; as if there were no consultants and advisers within reach; that his life depended on our acumen and sound judgment; that if we approach every case in this spirit of our own responsibility we can soon build up in ourselves a strength and confidence which is bound to be of great benefit to all those with whom we come in contact.

Do not believe for a minute that I am opposed to consultation and advice, but I do insist that when we seek consultation that we shall have arrived at as correct conclusions as is humanly possible to do, so that when our consultants have studied the case they may find we have arrived at a correct solution. In other words we should insist on a deeper, clearer and sounder study of the clinical aspects of the cases so that we can be able to do the very best for every one who

comes under our care. If we do this we will be approaching the high ideals of our profession that have gone with it from the dawn of medical care.

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ACUTE APPENDICITIS*

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ONLY two papers on acute appendicitis have been presented before the West Virginia State Medical Association in the past twelve years. This would seem to indicate that the members of the medical profession regard the problem of appendicitis as solved. A more critical consideration of the problem, however, will convince any thoughtful person that we have no basis for pride in the record we have made in dealing with this condition. As a matter of fact, we are compelled to admit an increasing mortality rate instead of being able to point to an increasing mastery of appendicitis.

In order to make any positive statements about mortality rates it is necessary to study comparative figures. It is also necessary that these figures cover a sufficiently large number of cases and that they be as accurate as possible. The data furnished by the Census Bureau of the United States Government have been used in this paper, since they represent large numbers and the census bureau is not trying to prove anything while compiling them.

These data indicate that in 1900 the death rate from appendicitis and typhilitis, per hundred thousand enumerated population, was 9.7. (The following statistics are based on per hundred thousand enumerated population.) In 1910 the death rate was 10.8 for the states included in the registration area

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at that time. In 1920 the death rate from these same states was 13.5, and for all the states included in the registration area in 1920 the rate was 13.2. The rate for 1930 has been reported as 15.2. The average rate for New York, Chicago, Philadelphia, Los Angeles, and Detroit for 1932 was 13.4. I am unable to secure data as to the deaths from appendicitis in West Virginia for the years 1900 and 1910. Incomplete data for 1920 shows 76 reported deaths. In 1930 there were 202 reported deaths. The population of West Virginia in 1920 was 1,463,701 which gives a death rate of 5.2. In 1930 the population was 1,729,205 which gives a death rate of 11.6, an increase of 123 per cent.

There seem to be three sets of factors, besides the patient's individual resistance, which influence the mortality rate. The first of these is his treatment while in the custody of his own family or friends. All too frequently the patient's family will regard abdominal pain as "colic" and administer a laxative or other home remedy. A laxative is one of the favorites. There can be no doubt that purgatives do a great deal of harm and we condemn their use in the strongest terms. We have put on a systematic program in our territory against this practice and there is evidence that it has helped. However, I believe that we are often prone to damn the general practitioner for permitting a laxative, and blame him and the laxative for any unfavorable result, when in reality we are subconsciously looking for an alibi to cover up our own failures, and are glad to focus attention on anything outside ourselves. I believe the greatest danger from the use of home remedies is the time that is lost while waiting to determine whether or not they will afford relief to the victim.

The second factor that is of prime importance is the management of the case after the physician has been called. Delay is just as dangerous when caused by the attending physician, as when the family is responsible. We have all seen cases of appendicitis in which the physician has acceded to family desire and tried to "freeze it out." I believe the following data will convince anyone of the dangers involved in such a course.

The importance of the time element in relation to the mortality rate in appendicitis is strikingly illustrated in a report by Bower. He found that 11,356 patients were operated upon for appendicitis in Philadelphia between the years 1928 and 1932. There was one death in every forty-five cases when the patient came to operation within twenty-four hours following onset of the disease, a mortality rate of 2.2 per cent. When the patient came to operation between twenty-four and forty-eight hours after onset there was one death in every twenty cases, a mortality rate of 5 per cent. When operation was performed forty-eight and seventy-two hours after onset there was one death in each fourteen cases, a mortality rate of 7.1 per cent. When operation was performed seventy-two or more hours after onset, there was one death in every nine cases, a mortality rate of 11.1 per cent. Patients who recovered had been ill an average of 54.31 hours, while those who expired had been ill an average of 84.39 hours.

These figures indicate clearly enough that appendicitis is, at first, a relatively simple condition which can be treated by a large group of surgeons, both experienced and inexperienced, and still yield a low mortality rate. The high mortality for the group of patients operated upon later, indicates that the problem at that stage is anything but a simple one.

The importance of the time element in relation to the mortality rate in appendicitis is all the more readily appreciated when we consider that, fundamentally, "the pathology of appendicitis is the pathology of strangulation." No surgeon would delay operation for the relief of an obstructed loop of intestine, yet we are sometimes prone to defer operation for appendicitis until it suits our convenience. Since the pathological changes in acute appendicitis are progressive it is quite

evident that the greater the interval between onset and operation, the greater will be the changes in the appendix, the greater the chances of perforation, and the greater the chance of an unfavorable termination of the case.

The third set of factors that are important in determining the mortality rate is the preoperative, operative, and postoperative management of the case after it reaches the hospital.

The preoperative period should be devoted to establishing a correct diagnosis and to determining the patient's chemical balance, inasmuch as this affords some indication of his fitness for the contemplated surgical procedures.

It is our custom to have appropriate laboratory studies made to determine whether or not there has been any disturbance in the acid base balance as manifested by an altered carbon dioxide combining power of the blood plasma. We also determine the non-protein and urea nitrogens to assist us in deciding whether an alteration in the renal-hepatic function is present. We estimate the blood or the plasma chlorides to determine whether or not there has been a depletion of the more important mineral constituents, that is; the sodium, calcium and potassium. Of course the usual blood counts and urinalyses are made.

These rather elaborate chemical studies frequently yield entirely normal data. When normal values are obtained, we consider the patient chemically suitable for surgical measures. Sometimes these chemical studies show evidence of a disturbance of the acid base balance, of demineralization, or impaired renal-hepatic function. Those patients with abnormal chemical values usually have more than a simple uncomplicated appendicitis which makes it all the more important that the true nature of affairs be recognized promptly. It is the preoperative recognition of these altered chemical values that affords us the opportunity to correct them before surgical measures have converted them into problems that we are unable to deal with successfully. It is this group of patients with evidence of disturbed chemical balance that fully justifies a most careful preoperative survey. Fortunately, such examinations can be completed in a relatively short period of time so that the patient can be ready for operation almost as soon as the operating room attendants are ready to receive him.

It has been well demonstrated that dehydration, demineralization, disturbance of the acid base balance, and depletion of the liver glycogen increase the sensitivity of the patient to infection, to the baneful effects of the anesthetic, and to the trauma of the operation. For these reasons the preoperative fortification of the liver by dextrose, preferably in Ringer's solution, is a rational procedure. This also prepares the patient to withstand better the effects of morphine that may be required later. The so-called "liver deaths" following appendectomy will be greatly decreased if the surgeon will insist upon these precautionary measures.

The technique of appendectomy will not be considered here for the reason that it is a more or less standardized procedure, and is discussed fully in all standard works on operative surgery. The importance of sharp dissection, gentle manipulation, and complete hemostasis is too evident to need discussion. However, I cannot refrain from a casual reference to them because I am convinced that postoperative intraabdominal and pulmonary complications are more or less directly proportional to operative trauma.

The question of drainage has occupied a prominent place in surgical literature. Certainly the surgeon is often in a quandary when he is confronted with the necessity of making a decision on this question. The idea of draining the peritoneal cavity as a whole has been demonstrated to be much of a fallacy. It is our custom to drain the abdominal cavity only when there is a palpable mass, or in late cases of peritonitis with localized areas of pus between the distended loops

of bowel. We do not drain the early cases of peritonitis, no matter what we suspect the causative organism to be. Our objection to drainage is that the procedure is not of any real value in draining the general peritoneal cavity and does increase the incidence of postoperative mechanical or dynamic obstruction. If we can decrease the incidence of postoperative obstruction, we should note a decrease in that mortality group not directly due to the toxemia resulting from an unreasonable length of time between the onset of the disease and the operation.

I would like to stress the importance of a careful inspection of the ileocolic vessels, especially in patients who have had a chill during the course of their illness. Such an examination will occasionally disclose evidence of thrombosis of one or more of these vessels. If thrombosis is encountered it is believed wise to incise, drain, and, of course, ligate the vessel above the thrombus in an effort to prevent further entrance of septic material into the portal circulation.

I believe that the selection of the anesthetic is a matter of some importance. We do not like ether because it is unpleasant for the patient, and causes well recognized changes in the liver, brain, and suprarenal glands. We do not like spinal anesthesia because it paralyzes the inhibitory splanchnic nerves, and "stimulates intense motor activity of the gut," a matter of some importance in case an early peritonitis is present. Our usual choice for an anesthetic is nitrous oxide oxygen. We like this anesthetic because its effects are fleeting, it reduces oxidation less than most of the other anesthetics, and has either a protective or less harmful effect on the kinetic system than the other popular anesthetics. In the "bad risk" patient we have found nitrous oxide oxygen analgesia plus regional anesthesia to be the anesthetic of choice.

Progress in surgical technique has made it possible for the surgeon to cope with most of the technical problems with which he is confronted at operation. However, I believe it is of the greatest importance for us to realize that the more difficult the technical problems with which we have to deal, the greater is the risk of a stormy postoperative course with the attendant clinical and chemical manifestations. I fully believe that the postoperative period constitutes a greater challenge to our ability and surgical judgment than the mastery of the technical problems encountered at operation.

It seems to be the usual custom to place the patient with peritonitis in Fowler's position following operation. This is of undoubted value in localizing pus early in peritonitis, but it must not be forgotten that there are certain harmful effects resulting directly from this position. It certainly slows down the return venous flow from the pelvis, and therefore favors thrombosis which will increase the incidence of pulmonary complications. I would also like to call attention to the fact that this position throws an increased burden upon the cardiovascular system at a time when such an increased burden can not well be tolerated. I do not believe I am exaggerating when I state that a great many potentially favorable clinical courses have been converted into unfavorable ones, because of the effects of prolonged Fowler's position upon the cardiovascular system.

During the postoperative period it is most important to keep a careful check upon the patient's water balance, mineral balance, acid base balance, and his renal-hepatic function by means of frequent blood chemical analyses. If the blood chlorides are low, especially the blood calcium chloride, it is most necessary to restore the depleted substance. It has been shown satisfactorily that calcium stimulates phagocytosis and assists in the repair of liver damage, two excellent reasons why the element should not be allowed to fall below the normal.

The selection of the fluids to be administered will depend somewhat upon the information yielded by blood chemical studies. We prefer Ringer's solution by venoclysis

unless there is some specific indication for some other fluid. We sometimes find depletion of sodium chloride corresponding to the findings reported by Hayden and Orr in cases of high intestinal obstruction. Where sodium chloride depletion is found we naturally replace the salt, usually in a solution fortified by dextrose. We are most emphatic in the opinion that fluids should not be given in a haphazard manner. We have found the studies used by Coller and Maddock quite useful in determining when we have actually restored the patient's fluid loss. They consider the fluid intake to be adequate when it permits a 24-hour output of urine of not less than 1500 c.c. with a specific gravity of 1.015 or 600 c.c. with a specific gravity of 1.030. In estimating fluid requirements it is well to remember that there is an insensible water loss of about 2000 c.c. and a loss of about 800 c.c. from the gastrointestinal tract. We have not employed this plan in a sufficiently large series of cases to speak of its value with any sense of authority, but our present opinion of the worth of the procedure is quite favorable.

One of the most distressing postoperative complications is distention. This can be partially prevented by gentle manipulation at the time of operation, by maintaining blood chemical values within normal limits, and by the use of the nasal tube which functions as a pseudo enterostomy.

The use of morphine varies with the individual surgeon. We employ it to protect the kinetic system and to prevent over distention of the intestines rather than employing the drug primarily for the relief of pain. If peritonitis is encountered we force morphine until the respiratory rate is depressed to 12 or 16 per minute. This is of value in putting the patient at rest but unfortunately tends to cause subventilation as a result of the depressed respiratory rate and facilitates pulmonary complications. In an effort to prevent, or at least reduce such complications, we routinely employ carbon dioxide-oxygen insufflations several times a day during the early part of the postoperative course. This tends to relieve suboxidation and to overcome passive atelectasis. We sometimes find it desirable to put these patients in an oxygen tent.

We have already referred briefly to postoperative intestinal obstruction. The early recognition of this condition is not always easy. We have occasionally received very real assistance in making an early diagnosis from a flat x-ray plate, since flatus can often be demonstrated in the small intestines before there is adequate clinical data to fully establish the diagnosis of obstruction.

The use of the enterostomy in patients who have developed postoperative ileus has been quite extensive in some quarters. We are inclined to believe that this procedure has been of service in some well selected cases, but we also believe that it has increased rather than decreased our mortality rate. Appendecostomy is of value in cases of appendicitis accompanied by peritonitis with distention. This procedure plus decompression of the upper alimentary tract with a nasal tube will serve the same purpose as an enterostomy and is a much safer procedure.

By adhering to the principles that I have outlined in this paper, that is; by insisting upon adequate though rapid preoperative survey; by the preoperative fortification of the liver with dextrose; by careful selection of the anesthetic; by avoiding all unnecessary trauma at the time of operation; by careful investigation of the ileocolic veins for evidence of thrombosis and the institution of appropriate treatment when thrombosis is encountered; by careful selection of cases for drainage and enterostomy; by discontinuing Fowler's position as a routine; by frequent postoperative chemical studies; by giving proper amounts of the appropriate fluids; by the use of the nasal tube for decompressing the upper alimentary tract; and by the free use of oxygen we have been able to handle a series of 2,024 cases with 29 deaths, giving a mortality rate of 1.4 per cent.

Discussion:

Dr. W. S. Fulton, Wheeling: To be able to handle a series of 2,024 cases of appendicitis and have a mortality of only 29 cases or 1.4 per cent is an accomplishment for which any surgeon is to be most heartily congratulated. These figures are the more striking when they are compared with the figures of the national and state mortality rates as quoted by Dr. Laird at the beginning of his paper. Considering these figures, one thought flashes through our minds, namely, that there can be no doubt that a good number of the patients who died from appendicitis must not have been fortunate enough to have been under the care of as capable a type of surgeon as we have present in the person of Dr. Laird.

I cannot believe that the morbidity rate of appendicitis per 100,000 population or even the severity of infection has increased in the last thirty years to such an extent as to excuse or warrant such an appalling rise in the mortality rate as shown by Dr. Laird's figures. To try to explain this discrepancy we have to remember that our diagnosis of appendicitis has become much more accurate and is, therefore, more frequently made in the last decades, and as a consequence the number of operations for appendicitis has increased during the last thirty years. It is, therefore, very hard to compare even as recent figures as those from 1900-1910 with those of 1930. I believe a more accurate way to compare figures would be to show the mortality rate of 1,000 operations for appendicitis in 1900 and 1,000 operations for appendicitis in 1930.

Another thought, although I hardly dare to make as bold an assumption as that, is whether or not there could be a relation between the figures of the increased mortality rate during the last thirty years and the undoubtedly increased number of operations for appendicitis during the same decades. I remember a statement of Osler that more than 75 per cent of the cases of appendicitis get well without an operation. I wonder whether the increased mortality rate is due to the untrained surgeon who may know his technique but does not prepare his patient and evaluate his operative risk, as Dr. Laird has shown how it should be done, and who does not give the patient the postoperative care which Dr. Laird has so beautifully outlined in his paper.

Intravenous glucose is used, in my opinion, entirely too promiscuously in postoperative treatment. The blood chemistry should be studied right along with it. The intake and output should be carefully observed. I have noticed in our own cases many times that distention and the greatest sort of abdominal discomfort follow the use of glucose when the intake and output are not observed carefully.

I also agree with Dr. Laird that nitrous oxide is the most satisfactory anesthesia.

I agree with Dr. Charles Mayo that our internes would accomplish more when going through the surgical wards if they carried a stomach tube or nasal tube around their neck rather than a stethoscope.

I want to congratulate Dr. Laird on his very interesting paper. I feel it is the last word in the scientific management of preoperative and postoperative surgical cases. I feel greatly honored that Dr. Laird asked me to discuss his paper.

Dr. John E. Cannaday, Charleston: I wish to compliment Dr. Laird on the clear and analytical analysis of his appendicitis cases, also the stress he has laid on both pathology and physiology with reference to the care and management of appendicitis cases. He has not been satisfied with mere routine treatment but has insisted on knowing the why and wherefore of the methods used.

Relative to the use of saline solution, it is easy to give it at the wrong time or to use too much as well as to use too little.

Doubtless some of you have heard the favorite story of Dr. Hendon of Louisville, who is always preaching venaclysis. The story is about a little boy who was given saline solution by venaclysis in accordance with the doctor's opinion that it was necessary and needful, and the next day the nurse called up and said: "Doctor, the little boy is all puffed up, in fact he cannot get his eyes open." Hendon said: "For God's sake, shut off that venaclysis."

We have looked up our appendicitis cases for the past three years and find 300 cases, classified as follows:

APPENDICITIS, ACUTE:			
Appendectomy (without intraperitoneal drainage). This also includes cases of early localized peritonitis. Many of these were cases of perforative appendicitis	162	Deaths 1	0.6%
APPENDICITIS, ACUTE WITH PERITONITIS	10	2	20%
Appendectomy (without drainage)	6		
Appendectomy and drainage	4		
APPENDIX ABSCESS	27	1	3.5%
Drainage only	25		
Appendectomy and drainage	2		
Total Acute Cases	199	4	2%
APPENDICITIS, CHRONIC:			
Appendectomy (without drainage)	101	1	1%
Total, Acute and Chronic	300	5	1.67%

The above summary does not include appendices incidentally removed in the course of other operations.

CAUSE OF DEATHS (Summary):

Chronic appendicitis: Wound separation and Peritonitis—(The patient got out of bed on the fifth day)	1
Acute appendicitis: Multiple abscess formation	1
Appendix abscess: Peritonitis	1
Appendicitis with advanced peritonitis	2

OCCIPUT POSTERIOR PRESENTATIONS—THEIR DIAGNOSIS AND TREATMENT*

By WALTER W. POINT, A. B., M. D., F. A. C. S.
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THE frequency of persistent occiput posterior presentations encountered at delivery is, in itself, a sufficient justification for this communication. Add to that one reason the resultant high fetal mortality; the grave maternal damages; plus morbidity, and you have not only a justification, but really an incentive to impress upon the accoucheur the importance of its early diagnosis and proper treatment.

Our texts all agree that it is the most common of all abnormal presentations, occurring with fair frequency in the practice of the physician who delivers an occasional case only, as well as in the practice of those who confine themselves to obstetrics. Probably no other abnormal presentation is so often wrongly diagnosed. More probably, and more certainly, no other abnormal presentation is so often not diagnosed early, an error which, more so than any one other factor, makes for the poor end results for which this abnormality is held responsible.

What causes the occiput to remain posterior? It really makes little difference whether one does or does not know, since little can be done to correct the malposition. Each of several theories has its many followers and these theories are to be mentioned here merely as a matter of interest. Caldwell and Malloy have recently advanced a theory based on male stigmas of the female pelvis; and Thoms, less recently, one based on high assimilation due to the sac-

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ralization of the fifth lumbra v e r t e b r a. Melhada, of Montreal, quite recently published another interesting theory, that the cause lies within the uterus itself. He bases his statement upon the fact that we not infrequently, at cesarians, find the placenta attached to the anterior wall of the uterus, thus forcing the fetal back more readily to accommodate itself to the posterior, unoccupied portion of the uterine cavity. As a second reason he cites the occasional overdevelopment of one half of the uterus from one of the two Müllerian ducts with consequent disproportion of the cavity which more readily and more naturally receives the fetal back. In addition to these theories we have the etiological factors long recognized as causative: deflection; abnormally large, or abnormally small fetal heads; contracted pelves; faulty deviation of the uterine axis; uterine or pelvic tumors; prolapse of hand or arm in front of the occiput; inefficiency of labor pains; lax pelvic floor; and inability of the fetal trunk, the back and so the shoulders, to move forward towards the symphysis. All may be considered as to their causative effect.

The early diagnosis of persistent occiput posterior presentations is usually not easy. Occasionally, the fetal heart sound is heard so much more plainly in the flank than anteriorly that there c a n be little doubt. Coupled with the finding of the fetal back on the right; a slow, non-progressive labor in the presence of adequate diameters; severe pain in the back, with a premature or early rupture of the membranes, always suspect a posterior presentation. I mention the back on the right as a presumptive bit of evidence because so many more right posterior presentations are encountered than left posterior presentations. My experience with vaginal examination for early diagnosis of this condition has been unsatisfactory. A primiparous cervix, thick and undilated, offers but little aid as to the location or direction of the fontanelle or the sutures, more particularly if the head is high in station. The same opinion is held if labor has progressed even far enough to result in a partial dilatation because either moulding or a caput may have obliterated these landmarks and they are of little, if any value.

Another point practically always noticed as valuable, provided one waits until appreciable dilatation has resulted, is that the entire cervix hangs loosely from the presenting part, the posterior lip being so very loosely applied as to remind one of the wrist end of their coat sleeve. If one waits even longer, or until the entire hand can be inserted between the presenting part and the cervix, diagnosis may be always made by locating the posterior ear and its direction. Obviously, occiput posterior labors are long, tedious, and painful. At no time is humane effort in the relief of pain more clearly indicated. During the past ten years or more, the obstetrician has come more and more to realize that it is his duty to alleviate the pain of labor as much as possible, consistent with safety for the mother and her unborn child, yet to realize that analgesia too early or in too great dosage may be prejudicial.

All analgesic agents have their ardent followers, whether it be morphia, the time-tested Gwathmey synergistic method, scopolamin, pañtopon, dilaúdid, ortal, or sodium amytal. To these may be added thymophysin, which, though not an analgesic, accomplishes remarkably well one of the two expected results for analgesics, quicker dilatation. All of these analgesic agents not only alleviate pain but through relaxation aid in dilatation. Since no interference should be considered until complete, or practically complete, dilatation has been effected, analgesics play an important part also in helping to prevent the development of the tetanospasmodic ring dystocias, so thoroughly described recently by Weiss. In the 92 cases which this presentation covers, morphia alone was exhibited in nine cases; Gwathmey in 10 cases; thymophysin and morphia together in 29 cases; and sodium amytal with morphia or dilaúdid in 44 cases. All gave satisfac-

tory results but the last 29 consecutive cases received sodium amytal with morphia or dilaúdid and this combination is the present procedure in my hands because it has proven itself to be the most satisfactory. A word of caution about the use of morphia or dilaúdid with amytal too close to delivery is necessary however. Sodium amytal has about replaced thymophysin because in addition to its value as a sedative and amnesic, it has the advantage of hastening dilatation, which is the *only* result expected of thymophysin. Just as obstetricians differ in their choice of analgesia, so do they differ in their method of handling posterior occiput deliveries. It can be safely assumed that no one method can properly be labelled as the best. In all branches of medicine and surgery the individual physician uses the method which experience and judgment have proved to be the best in his hands. The progressive man discards even an old and proved remedy or method for one which is safer and easier. Methods of delivering the abnormal presentation considered in this paper are no exception. For a number of years after confining my work to obstetrics, I routinely delivered these cases by podalic version with forceps extraction. Speaking very frankly I admit that with few exceptions, I was greatly worried about the possibility of the aftercoming head hanging on the promontory or of other complications which might result in tragedy, such as death of the fetus from asphyxiation, cord injury, or intracranial injury, or lesser injuries such as fractures, localized paralysis, etc. And, gentlemen, I experienced all of these except a cord injury. Several years ago I began to deliver these cases by the method of bimanual rotation and forceps extraction. In my hands this change has proved itself to be for the better in every way.

Let us take an occiput posterior right as an example. Just as soon as dilatation is complete, the patient is completely anesthetized and the entire vaginal vault is thoroughly dilated, using sterile green soap as an emollient. With the entire left hand within the vagina, the fetal head is grasped in the cupped hand. The right hand is placed on top of the sterile draping over the abdomen and is then pushed into the mother's right flank until it is behind the fetal back. Simultaneouly both hands rotate the fetus 180 degrees, or in other words, until the presentation is changed from an ROP to an LOA. With the assistance of a nurse, who uses sufficient pressure externally and to the left, the fetus is kept in this position until forceps are applied in LOA and the fetal head brought to the perineum where short, light forceps may be substituted for actual delivery. A perineotomy or episiotomy is almost routinely done before the head is brought to the perineum. In the event that difficulty is experienced in rotating, the fetal head may be freely disengaged, the left hand pushed up until the fingers are inserted into the right axilla, and rotation easily completed because the fetal head rotates almost automatically when the shoulders are rotated. By this method the danger of a prolapsed cord is practically nil, as the inserted hand can control its descent if there should be such danger. Personally, I have not had a prolapsed cord during this maneuver. Melhada, of Montreal, quite recently described a method by which he routinely disengages the head, rotates it to the transverse position, applies forceps in that position, and by traction and rotation, delivers with forceps. He answers one criticism—that of the danger of high forceps—by stating a well known fact; it is not without danger to deliver an unmoulded and unengaged head at the inlet, while it is comparatively easy to deliver a head which has been moulded and is at the inlet.

Many of you prefer the method of version and extraction, some of you the Scanzoni, while others may choose to deliver with the occiput in the sacrum. The purpose of this communication is not to put forward the method I have described as the best. It is merely that of all the methods I have tried,

bimanual rotation with forceps extraction has served me with the greatest ease and safety to mother and baby.

In checking over the last 1000 cases, there were 92 persistent occiput posterior deliveries. This is an incidence of 9.2 per one hundred. Published statistics of incidence vary from six per cent to 25 per cent, so that one must realize the importance of this presentation as an abnormality. Of the 92 cases, 78 were ROP and 14 were LOP. The right posterior was found so often that even now I consider with suspicion any right presentation case which does not progress satisfactorily. Of the babies in this series, 58 were males and 34 were females. The largest weight recorded was 11 pounds, four ounces and the smallest was three pounds, four ounces, with an average for the series of seven pounds, nine ounces. The youngest mother was 16 years old and the oldest 46¾ years, with an average for the series of 27¼ years. Forty-nine mothers were para one, the average being two, and the most parous being para xv. Incidentally the last mentioned case delivered the largest baby. The longest labor recorded was also the one last mentioned. She had been in labor 98 hours before admission to the hospital from a coal camp. Her baby was delivered in good condition even after she had received 11 hypodermics of pituitrin or morphine at home and delivery had been attempted twice with forceps. No diagnosis but that of dystocia was on her admittance slip but inertia undoubtedly was a prime factor in the delay. The shortest labor was that experienced by a physician's wife quite recently. Her baby was delivered by bimanual rotation and forceps just two hours after her first pain. Thymophysin is given the credit for her rapid dilatation.

In this series, podalic version with forceps extraction was done 29 times, bimanual rotation with forceps extraction 61 times, one was delivered with the head in transverse following bimanual rotation, and one with the occiput on the sacrum. The versions were all done prior to three years ago. There was no maternal mortality but three babies were lost from the following causes: (1) asphyxia, because of inability to extract the aftercoming head; (2) intracranial hemorrhage 16 hours postpartum, from forceps on an aftercoming head (hyprocephalic type); (3) cause unknown. The last case was quite easy and the baby lived about three hours. At birth it looked as though it was practically bloodless yet there was no evidence of hemorrhage from the fetus, the cord, or the placenta. This case was delivered by bimanual rotation and forceps. Two mothers hemorrhaged from a badly lacerated cervix. Both were repaired at the time but one began to run a temperature on the second day and was transfused, 250 c.c. of blood being given. She became normal very promptly. Perineotomy was done on 44 cases; episiotomy on 11 cases, three incurred complete lacerations with complete recovery; while three suffered first degree lacerations of the perineum and four moderate second degree tears. The remainder, or 27, sustained no perineal damage. Obstetrical shock was noted in three cases, all delivered by version and extraction. Four had placenta previa. Six cases of tetanospasm were encountered but yielded to heavy sedation and morphia. All six cases gave a history of having had several injections of pituitrin with long labors before admission to the hospital. One case of subluxation of the pubis, the first one I have ever seen, was noted in the physician's wife who delivered so easily after a two-hour labor. Her baby weighed six pounds, six ounces. Strange to say but four cases were noted in which a posterior position occurred more than once in the same patient. Fetal injuries totaled six. Three sustained a hemorrhage into the sterno-cleido-mastoid muscle; two, a fracture of the clavicle; and one, a fracture of the humerus. All six were version and extraction cases.

Obviously, a great deal more could be presented to you on this subject but it has been deleted with the hope that it will be discussed liberally.

THE DIAGNOSIS AND TREATMENT OF ACUTE POLIOMYELITIS*

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POLIOMYELITIS occurs throughout the world. No country or race seems to escape its ravages. It may be present endemically or epidemically. Early childhood is the age most frequntly affected but cases occur even in middle life.

It is generally accepted that the cause of acute poliomyelitis is a filterable virus[1], and that the disease is spread by human contact. Most individuals acquire an immunity to the disease without ever realizing that they have harbored the germs in their bodies. In fact, approximately 90%[2] of adults show in their blood antibodies that neutralize the virus of poliomyelitis. Many 'normal' adults have a higher antibody titer to their serum than cases that have definitely had the disease previously. This fact accounts for the theory that acute poliomyelitis is a widespread infection and that the only cases recognized clinically are those with nervous system involvement. The high incidence of subclinical cases is also used to explain the spread of the disease by human contact. The virus of the disease has been recovered from the throats of apparently healthy humans in a few instances to substantiate this claim.

Much work has been done on this disease in the past 25 years and, while we may feel discouraged over some of the results of the research work performed, still much information has been gained regarding the nature of the disease, its diagnosis and treatment[3]. Even cases with persistent paralysis have a much better outlook than similar cases 25 years ago. The increasing familiarity with the disease, manifested by the numerous articles being published, will in all probability explain the apparently increasing incidence of acute poliomyelitis in this country.

The onset of acute poliomyelitis varies in different epidemics. The initial sypmtoms are usually referable to the upper respiratory tract or the gastrointestinal tract. There is frequently a pharyngitis. There may be nausea and vomiting, and either diarrhea or constipation, the latter predominating in most cases. The patient is languid and listless. The temperature varies from 100° to 103°, though at times it may be higher. The above initial symptoms may precede the nervous symptoms by one to five days, or may be continuous with the second stage, which represents invasion of the nervous system. At this time, signs and symptoms appear that more definitely aid in a correct diagnosis of the underlying infection. There is headache. There is drowsiness, though the patient is quite alert and rational when aroused. This is an important diagnostic finding. Convulsions are rare. Pain somewhere in the body is present. This may be pain in the neck, back, abdomen or extremities. At times, pain in an extremity presages an oncoming paralysis. This pain may persist on into convalescence.

Ataxic tremors are common, in fact, tremors of the hands and twitchings in various groups of muscles may be seen frequently in the early part of the second stage. Stiffness of the neck is an important diagnostic finding. This usually precedes the stiffness in the back and, when present in a rational child with preceding symptoms of a vague infection, it should call to mind acute poliomyelitis. This stiffness can be demonstrated by gently raising the head of the patient, or better still, by asking the patient to sit up in

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bed. In most cases, the neck is held stiff and the child supports himself by placing the extended arms on the bed behind him. If the child is now asked to fold the arms on the chest, he will reluctantly try and then revert back to the original position. This is known as Amoss' sign and is an important aid in early childhood, especially in a rebellious patient.

There may be a moderate Kernig's sign. Early in the disease, the knee jerks are exaggerated but, as the disease progresses, the knee jerks become diminished or frequently absent. This is also true of the other deep reflexes. The abdominals are frequently absent. There is usually a tâche cerebrale. The pupils are usually normal. Profuse sweating may be present. Difficulty in voiding or even definite retention occurs in many cases. There may be a persistent obstipation with tympanites that will require enemas for relief.

Given a patient, especially a child, with vague symptoms of some infection followed by drowsiness, with irritability in a rational patient when aroused, tremors, headache, or pain elsewhere in the body, and a stiff neck and back, along with a diminution in the deep reflexes, poliomyelitis should be suspected and a lumbar puncture performed. The characteristic findings in the spinal fluid in acute poliomyelitis are: increased pressure, increased globulin, normal sugar, increased cell count, varying from 10 to 1000 cells with mononuclear cells predominating, except in the very early stages when polymorphonuclear cells are more numerous, and there is an absence of organisms.

Such a spinal fluid with the symptoms above enumerated warrants a diagnosis of preparalytic poliomyelitis. The disease may end here, as the majority of cases do, and, if so, it is spoken of as the non-paralytic type. The following case report illustrates this type:

J. R., age 5 years, seen August 6, 1933, in consultation with Dr. J. Y. Two days before seen, this child began vomiting and was constipated. He was given a laxative at the onset and, in spite of the fact that the laxative was retained, he had no bowel movement. He complained of headache and was languid and listless. The morning seen, he remained in bed and was very drowsy. He also had pain in the neck and back. On physical examination, he was a well developed and nourished boy of five years, lying in a stupor. He was easily aroused and was very alert and rational. Upon sitting up in bed he held his neck stiff and supported himself on his hands, which were placed behind him on the bed. There was very definite stiffness of the neck and back. The right knee jerk was absent. The left knee jerk was sluggish. There was a positive tâche cerebrale. Temperature was 101°. Other physical signs were normal. Lumbar puncture was performed and a ground glass fluid, under pressure, was obtained. Globulin was positive. The sugar was slightly reduced. The cell count was 120, chiefly lymphocytes. There were no organisms. A diagnosis of preparalytic poliomyelitis was made and 40 c.c. of convalescent serum was given intramuscularly. The following day, the child seemed better, though the knee jerks were absent and the lower extremities were sore when moved. Twenty-seven c.c. of serum was given. One week later the child was apparently normal.

The following case illustrates the prodromal type or the type with an interval between the initial stage and the second stage:

C. J., age 19 months, seen September 7, 1933. This child was first seen with an acute pharyngitis and a temperature of 102°. He was improved the following day and seemed well for the succeeding four days. He then developed anorexia and was irritable. He was constipated for the first time in months, usually having two stools daily. The next day, five days after the initial pharyngitis, he was drowsy, but alert when aroused. His temperature was 102°. There were tremors of the hands and tongue. His neck and the upper portion of the back were stiff. The abdominal reflexes were absent, others were normal. Lumbar puncture was performed and a ground glass fluid, under pressure was obtained. Globulin was present. Sugar was normal. The cell count was 140, equally divided between polys and lymphocytes. There were no organisms. Forty-five c.c. of convalescent serum was given intramuscularly. The following day he was no better. He was drowsy and the stiffness in the neck and back had increased.

The knee jerks were present but greatly diminished. On the second day, he was much improved and, at the end of a week, he was apparently normal.

The spinal type is characterized by the development of flaccid paralysis following the invasion of the nervous system. The following case is an example:

W. W., age four years, seen August 8, 1933. There was a history of anorexia, vomiting, malaise, headache, drowsiness and fever for 24 hours. This little girl was lying on a couch and apparently asleep when the room was entered. She was easily aroused and perfectly rational. Stiffness in the neck was present and the left knee jerk was absent. Her temperature was 102°. Lumbar puncture was performed, revealing a ground glass fluid, with increased pressure. Globulin was present. Sugar was normal. The cell count was 120, consisting of lymphocytes and polymorphornuclear cells. There were no organisms. Thirty-five c.c. of convalescent serum was administered intramuscularly and 15 c.c. more given the following morning when there was no improvement in her condition. The following day, there was absence of knee jerks and also absent left biceps reflexes with soreness of the muscles in the left arm. That evening, there was a definite deltoid paralysis with weakness of all the muscles in the left arm. This weakness cleared up in a few weeks but the deltoid paralysis persisted. An aeroplane splint was used on the arm and the usual postparalytic treatment was given. At the end of six months, she was able to use the arm well in all directions but it still remained weaker than the other arm. Her recovery, however, has been quite satisfactory.

Another case of this type will also illustrate the confusion that often arises in making a diagnosis:

A. H., age three and one-half years. Seen July 15, 1933. This child had been vomiting 36 hours. She gave a history of eating green apples the day of onset and the attending physician prescribed calomel for an apparently simple digestive upset. Two days later, she was no better and the family physician requested me to see the child. The parents were Greeks and spoke English poorly. However, a history was obtained of continued vomiting, abdominal pain, high temperature and drowsiness. Her temperature was 103°. Physical examination revealed nothing definite. A specimen of urine obtained on this visit showed numerous pus cells. The usual treatment for pyelitis was ordered. The following day, the temperature was still elevated and she was quite drowsy. There was some stiffness in the neck. The knee jerks were sluggish. There had been no other cases of poliomyelitis in town, so treatment for a uninary infection was continued. The next morning, there was definite rigidity of the neck and back. Both lower extremities were very sore. The knee jerks were absent. A lumbar puncture was performed and a "bloody tap" resulted. Dr. C. W. W. was called in consultation and confirmed the diagnosis of poliomyelitis. Forty c.c. of serum was given intramuscularly a few hours later, and that evening there was a definite flaccid paralysis of the muscles in the legs. By the next morning, the paralysis had extended up to the ribs. The patient had to be catheterized and bowels moved by colonic irrigations for several days. Lumbar punctures were repeated for four days. The limbs were kept in anatomical position. Weakness appeared in both arms but this cleared in a few weeks. With the aid of a trained physiotherapist, this child has made some recovery in the lower limbs but her outlook is anything but bright.

At times the pathology of the disease is centered higher up in the cord, involving the respiratory muscles. Such a case was seen in consultation with one of the doctors here in Monongalia county.

G. C. age seven years. Seen in consultation with Dr. P. on September 17, 1933. There was a history of vomiting, headache, a tingling sensation in the arms and fever of two days' duration. There was some weakness of the extremities but the most marked difficulty was in breathing. This child had a temperature of 101½°. She was drowsy but rational when aroused. Breathing was abdominal in type due to paralysis of the intercostals. The neck was quite stiff. Thirty c.c. of convalescent serum was administered intramuscularly but the patient died two days later of respiratory failure.

It is in cases of this type that the Drinker respirator is indicated. The mortality of cases with respiratory paralysis has been reduced tremendously by its use.

During epidemics, cases are occasionally seen without any preparalytic symptoms, the child developing a flaccid paralysis with few

warning signs. Such a case was seen this past fall.

P. G., age eight years. Seen in consultation with Dr. L. D. H., October 17, 1933. This child was playing with the children of the neighborhood the evening before seen. She came in for bed complaining of her legs being tired. The following morning she fell on the floor when she attempted to get out of bed. She was seen later in the day and a flaccid paralysis of the right leg was present. There was also weakness of the left leg. Her neck and back were stiff. Rectal temperature was 100°. For several days, she had severe neuritic pains in the right leg. The left leg was sore and weak but no definite paralysis developed. This child has coöperated splendidly during her convalescence and is now able to walk without difficulty at the end of six months.

This briefly summarizes the usual types of acute poliomyelitis. There is a bulbar type which involves the cranial nerves, and sometimes the vital centers, but it is not a common form.

The mortality of the disease varies from 5 per cent to 40 per cent, usually running around 10 percent. Unfavorable signs are increasing pulse rate, rapid respirations and extreme prostration. The cell count on the spinal fluid has some prognostic significance, the lower the number of cells, the better the prognosis. It has been stated that not more than 25 per cent of all cases that can be diagnosed develop paralysis. So far as we know, there is no danger of mental defects following the disease[5].

TREATMENT

Various attempts have been made to develop an antitoxin or serum for the treatment of cases of acute poliomyelitis. Horses, sheep, goats and monkeys have been used but, so far, nothing has been offered that influences the morbidity or the mortality of the disease.

The value of human convalescent serum is as yet undetermined[6]. There are many favorable reports in the literature using the serum intraspinously, intravenously and intramuscularly. No controls were used in any of these studies. When it is realized that only one out of four cases that can be diagnosed ever develops paralysis, it is easy to understand that it is difficult to determine the value of any remedy. In the epidemic of 1931 occurring in New York and Connecticut, a very thorough study was made, using controls, to determine the effect of convalescent serum. The conclusion drawn from this careful study, as summarized by Park, was that there is "no statistical proof that the serum has any value when given in cases after the cells of the central nervous system are involved."

It is the impression of most workers that, if the serum is given within the first 24 hours, it does help. The serum should be given intravenously or intramuscularly. There is no evidence that serum given intraspinously has any advantage over the intravenous or intramuscular routes, in fact, meningeal irritation is always increased[7].

Repeated spinal punctures to relieve pressure seem advisable. The use intravenously of dehydrating solutions, such as glucose or salt, theoretically may be of some value.

Epinephrin and ephredin have been administered intraspinously with the idea of lessening the edematous condition of the cord. This type of therapy has not been used extensively and no definite conclusions can be drawn, though the general impression of those who have used this type of therapy is that the effect of the treatment is favorable.

In the present state of our knowledge, it seems justifiable to use convalescent serum when it can be administered early[8] and depend upon repeated lumbar punctures to relieve pressure when meningeal irritation is pronounced.

After paralysis has developed, the patient should receive our most careful attention. During the preparalytic stage we have been treating an acute infectious disease in a patient. Our attention has been centered chiefly on the disease. After the paralysis has occurred, our attention must be focused on the patient. By and large, the ultimate

degree of recovery will depend upon the interest and the supervision given the patient during the prolonged convalescence.

As Ruhrah has stated[9] "failure to prevent deformities due to contraction of the muscles, tendons and fasciæ is the greatest sin of omission." Deformities may take place quickly, a week or 10 days neglect may lead to a foot drop or a stretched deltoid that will leave permanent damage. Therefore, as soon as paralysis manifests itself, a splint should be applied to prevent overstretching of the involved muscle or muscles. The splint should be removable so that daily baths may be given. As long as there is pain and tenderness present, absolute rest of the involved muscles and joints is important. Later, salt baths and massage are indicated. It is rarely possible to start massage before the fourth week. The massage, at first, should be light and of short duration. Given during or immediately after the hot salt bath, it is more effective. Passive motion should be instituted about the time massage is started.

As recovery becomes evident, muscle training is employed. Here the patient is put through passive movements and "he wills the movement."[10] This procedure is kept up until finally he is permitted to perform the movement unassisted.

At all stages during convalescence, overfatigue of the affected muscle or muscles must be avoided, as relapse or, possibly, permanent damage may result. It is better to be ultraconservative than err by allowing fatigue to develop. As Whitman has said, "over fatigue of a weakened muscle is the greatest obstacle to its recovery."[11]

Exposure to ultraviolet rays, either in the form of sunshine or by using a Quartz lamp, seems to have a stimulating effect. It goes without saying that the general nutrition of the patient should receive careful attention.

Mental diversion to maintain the patient's morale is very important. Too frequently, these patients are allowed to remain in bed to twist and turn and stew and fret when this could be avoided by affording pleasant diversion of some kind, depending upon the age of the patient.

The inquiry is frequently made, when a case of poliomyelitis occurs in a community, what can be done to protect the other children? Convalescent serum has been recommended for this purpose. More recently, due to the presence of antibodies in the blood of the majority of adults, parental whole blood (10-20 c.c.) has been suggested.[12] This was tried in an epidemic of poliomyelitis that occurred in Bradford, Pennsylvania in 1932. One thousand, three hundred children under 15 years of age were so inoculated. Not one out of the 1300 developed poliomyelitis, in spite of the fact that 32 additional cases of poliomyelitis occurred in the town. This number is too small to draw any definite conclusions but, judging by the effectiveness of similar prophylaxis in measles which, too, is a virus disease, the use of parental whole blood is certainly worthy of further trial. The immunity produced by the use of blood or convalescent serum is supposed to last for five to seven weeks, at the end of which time the injection should be repeated.

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CHILD HYGIENE IN A COAL MINING COMMUNITY

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FIFTY years ago there was practically no child welfare work as we know it today. In fact prior to 1872, the child had hardly been discovered.

In this line of work, a very important event occurred in 1866, that was the establishment of the Society for the Prevention of Cruelty to Animals. This society was modeled after a like organization, that was founded in England in 1823. A mission worker in New York, came upon a child who had been adopted at an early age by two disreputable individuals, who were treating her with great cruelty. Being unable to get action through her own efforts, she called upon the Society for Prevention of Cruelty to Animals. The matter was taken under careful consideration, and referred to the counsel of the society who decided that, "The child being an animal," the society would act. A great deal of attention was paid to the Mary Ellen case, and so many demands made for action in similar cases, that the Society for the Prevention of Cruelty to Children was established in April, 1875.

From that time on, progress was more rapid. But the basis of practically all child welfare work up to the beginning of the 20th century, was providing shelter and the prevention of cruelty. The protection of the health of the child is the development of the 20th century.

The older child who was more in evidence than the baby, received the first attention, and it has only been as years passed, that we have gradually begun to realize that we must start early if we are to insure a healthy, intelligent and efficient race.

The reasons for regarding infant mortality as a major health problem are humanitarian, social and economic. Infant mortality is in a measure a class disease, since there is a marked difference in the death rate of the children of the poor and the rich. Yet, in the days long gone by, Queen Anne had 18 or 19 children and only one reached the age of 11 years. So even royalty were not spared or excepted.

Child welfare is the older term and used in its broadest sense, especially concerns itself with the care of sick, dependent, delinquent and defective children, while child hygiene concerns itself primarily with child health.

In a general way child hygiene can be subdivided into four general stages:

1. Prenatal;
2. Infant;
3. Preschool;
4. School.

In carrying out a general program in a coal mining community, the subdivision of infant and preschool overlap so to speak, as do the preschool and school. The prenatal work is largely of an educational nature, and while we contact as many mothers as possible, prior to the birth of the child, this line of work is slow. Yet at the present time an ever increasing number of mothers consult us relative to their prenatal care. Especially is this true of the primipara and the results have been gratifying.

Infant and Preschool: In this type of endeavor, our best results have been accomplished by the aid of the preschool clinic or conference and, in the past three years, we have held three clinics with a total attendance of 1,060 children. So out of a total population of about 5,000 people, we have come in contact with approximately 20 per cent of the population. These contacts do not end just with the clinic contact, as each mother

is given a form with the findings of the examination and this slip is explained by a trained nurse, one who speaks not alone in medical terms, but explains what it is all about. Then the mother will come to the plant physician, and after it is all over, the mothers will talk among themselves. A great deal of information is spread in this way. Some of it may be distorted, but they are talking about a subject which has to be spread to accomplish results.

In selecting the personnel for the clinics, only the best pediatricians should be selected, as on their knowledge and ability to put over the matter to the mothers, depends the success of the clinic. The following are some of the results from our preschool clinics:

In the matter of breast feeding in—

1930 we had 57.5%
1931 " " 78%
1933 " " 84%

These figures are very encouraging, and another fact is that the number of cases of diarrhea has shown a decline. (That is among children under two years of age.)

On the other hand the figures in the underweight child are not as encouraging. In—

1930 we had 51%
1931 " " 44%
1933 " " 56%

Here again the economic conditions may effect the diet of the mother, and the balanced diet of 1930 and 1931 was not in evidence in 1923.

In the immunization work, the value of the work has a very noticeable effect:

In diphtheria—

1930 we had 8.1%
1931 " " 18.8%
1933 " " 36.7%

In smallpox—

1930 we had 4%
1931 " " 18.8%
1933 " " 23.7%

In thyhoid—

1930 we had 28.9%
1931 " " 25.4%
1933 " " 33.7%

These figures are not as high as in our school group, yet there is a decided general improvement, and if we can only forge ahead in the diphtheria immunization, we will soon have a protection where it is mostly needed.

In the Matter of Defects and Corrections:

Date	No. Children	No. Defects	Corrections	Improvements
1930	172	604	80	40

Percentage of corrections and improvements 19.90%

Date	No. Children	No. Defects	Corrections	Improvements
1931	506	863	208	175

Percentage of corrections and improvements 44.38%

Date	No. Children	No. Defects	Corrections	Improvements
1933	355	935	135	111

Percentage of corrections and improvements 26.31%

(Cause of lower percentage of corrections and improvements was nurse and labor turnover.)

Crippled Children's Clinic: In the preschool clinics we always have an orthopedic section, but we do not limit the age. In 1933, the last crippled children's clinic, there were 21 children examined. In some, treatment was indicated, in others, little could be accomplished. Yet 52.38 per cent of this group are under treatment.

After each clinic, the mother is given a slip with a list of the defects found, and a list is supplied to each plant physician so that we can stress the follow-up work as much as is possible.

School Work—Weighing: As soon as the school opens in the fall, we visit the schools and place a weight chart in each room, and then secure the weight and height of each child. This is continued at monthly intervals during the entire school year. This is carried on by the school teacher, and our social worker checks over the weights to see that they are correct. This to my mind is a very important part of the entire program. It stimulates interest among the children and the children carry the message home to the parents, and as a result there are many inquiries which the doctors receive as to why

John is underweight, and suggestions can be made at once.

In 1932—Normal weight 72.16%
Under weight 18%
Over weight 9.63%

(800 children and 15% over and under.)

In 1933—Normal weight 77.16%
Under weight 13.06%
Over weight 9.91%

(1100 children and 10% over and under.)

The total number of children included in the above figures was 1900. The gain per child for 1933 was 5.27 pounds.

Milk in Schools: In checking over our first weighing of 304 school children in the fall of 1930, we found many that were underweight and undernourished. We tried to find the cause. Personal talks were given in each grade, and we found that the chief cause was faulty nutrition; especially was the lack of milk in their diet noted. Strange as it may seem, we found a large percentage of children who claimed they did not have milk in their homes and some that did not know the taste of milk.

Going back into the habits of this group of people, we found that they were employed in two main groups, one a day shift and the other on a night shift. The miner leaves his home early and the average family is rather large, the mother in order to save time and labor, calls the children for an early breakfast. Then there must be a hot meal when the miner comes home from work late in the afternoon. Consequently, that means a cold lunch at noon or, as we found in many cases, a bottle of carbonated beverage and a piece of candy.

Taking it all in all, one can readily see that the food requirements for a growing child were not fully met. With these facts before us, we tried to devise a plan that was workable, economical and yet helpful in the food problem. Here milk seemed to be our one hope.

A plan was worked out so that milk was furnished to the school children (½ pint) during morning recess. Due to this plan, the sale of milk in the stores increased from 45 to 50 per cent. So evidently the milk in the schools was just a starter, and the results have been very gratifying in reducing the percentage of underweight children.

Immunization: Immunization is a major problem and we try to get the children immunized as they enter school in the fall. Our figures on immunization of school children are as follows:

In 1931 Based on 379 Children
Typhoid 74.64%
Diphtheria 84.96%
Smallpox 76.51%

In 1932 Based on 1046 Children
Typhoid 87.09%
Diphtheria 83.74%
Smallpox 74.18%

In 1933 Based on 1178 Children
Typhoid 97.43%
Diphtheria 96.75%
Smallpox 82.25%

Due to the above large percentage of immunizations, we were very fortunate not to have any epidemics due to any of the above diseases.

Physical Examinations: In 1931 based on 403 children we found 887 defects, children without defects 84, percentage of corrections and improvements 16.23 per cent.

In 1932 based on 975 children we found 1842 defects, children without defects 102, percentage of corrections and improvements 16.77 per cent.

In 1933 based on 1178 children we found 2306 defects, children without defects 79, percentage of corrections and improvements 18.47 per cent.

Dental Work: We selected 63 children with the worst dental conditions, each child had the teeth cleaned, extractions made where indicated, and fillings as required. In going over this group of children at the next physical examination a year later, a very marked improvement was noted, and it is to

be regretted that more dental work is not done in these age groups—that is from six to 16 years of age.

Conclusions: (1) Preventive medicine, child hygiene and prenatal work has, in its broadest sense, proven to be the most valuable of all agencies in use, to build up the health and well being of the coming generations, by preparing the infant and child to meet the actual battle for existence in the best possible physical condition. We should seriously consider the fact that the "whole child" has to be developed in a normal and natural way to be able to stand the shock of actual life, if he or she is to be able to carry on as a healthy useful citizen, as a productive unit in our society, and not be a burden to others and an expense to all concerned;

(2) Expenditures made in prevention are much better than the expenditures made for the maintenance of state institutions to care for these unfortunates;

(3) The saving of lives, the promotion of health, prevention of delinquency, provision of wholesome opportunities for the use of leisure time, securing a normal environment for the children are much the same, whether in a coal mining community or a city, and every effort should be made to fulfill our obligations to the coming generations, to ourselves and to posterity.

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CISTERNA MAGNA PUNCTURE*

It's Technique and Uses

By RICHARD B. EASLEY, M. D.
Huntington, W. Va.

IN 1920, Ayer and his co-workers introduced the cisterna magna or suboccipital puncture as a diagnostic aid in the management of neurological cases. Lumbar puncture had at this time become almost a routine in neurologic practice and was of decided value but did not give as much information as was desirable, particularly in those cases in which there was a total or partial blockage of the subarachnoid space within the spinal canal.

The technique devised by Ayer has been little changed, and is as follows: A small area of the head surrounding the external occipital protuberance and extending down to the base of the neck is carefully shaved, cleansed thoroughly with soap and water, and painted with iodine and alcohol. With the patient on his side, head bent forward and downward, the skin and underlying tissues are injected with one per cent novocaine solution, and a few minutes allowed to elapse in order that the anesthesia be effective and complete. Then, an ordinary lumbar puncture needle of average caliber is inserted into the midline at a point midway between the occipital protuberance and the spine of the second cervical vertebra or axis. Its course is directed upward and slightly forward in the direction of the eyes or glabella until the occiput is reached just posterior to the foramen magnum. The stylet is then withdrawn and the point of the needle deflected slightly downward and carefully worked forward until it slides along the posterior rim of the foramen magnum, pierces the dura, and enters the cisterna magna. The same feel is noted when the dura is pierced in this area as in the lumbar region. This feel is immediately followed by the flow of cerebrospinal fluid from the needle.

Great care should be observed that the needle does not penetrate too deeply. The

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cisterna magna lies at the base of the brain directly behind the medulla and puncture of the medulla is an accident fraught with grave danger. This need not happen if proper care be exercised. The total depth to which the needle must be inserted depends upon the thickness of the neck and varies from three to five and one-half centimeters. The depth after withdrawal of the stylet varies from one-half to one and one-half centimeters. A wise precaution, therefore, is to actually measure upon the needle the maximum depth and attach an elastic band to the needle at this point to prevent it going deeper.

In the original procedure devised by Ayer, cisterna magna puncture was combined with lumbar puncture to determine the existence of spinal subarachnoid block. Manometers were attached to the needles in the two locations and the pressure readings observed, particularly when the Queckenstedt test was tried. This test is carried out by having someone compress the jugular veins and noting the rise of fluid in the manometers. Jugular compression causes an obstruction to the return flow of blood from the brain and thereby produces a mechanical increase in intracranial pressure. In the event of blockage within the spinal subarachnoid space, there is a wide variation in the manometric readings in the two areas. The fluid rises promptly in the manometer attached to the needle which is inserted into the cistern and sluggishly or not at all in the manometer attached to the lumbar needle, depending upon whether there be a partial or total blockage. This test has no localizing value, but in the event that there is a blockage, it is a very simple matter then to introduce lipiodol into the cisterna magna before withdrawing the needle, have the patient examined under fluroscope and xray, and thus determine the exact level of the block. In addition to changes noted in the pressure readings, there are also certain chemical differences in the fluid obtained from the two levels—notably, a much greater total protein and globulin content, and a diminution in the amount of sugar being found at the lower level.

Inasmuch as there are very few indications for operative exposure of the spinal cord other than those accompanied by some degree of blockage, the value of combined puncture is obvious. Combined puncture is likewise of value in certain cases of an inflammatory nature where it is desired to flush the subarachnoid space. Normal saline may be introduced into the upper and allowed to drain through the lower needle.

Since the appearance of Ayer's work, there have been many enthusiasts who advocate the use of cistern puncture, some even going so far as to suggest that it supplant the usual lumbar puncture. It is unquestionably true that there are certain conditions in which the cistern is the site of election but because of the proximity to vital structures and the danger that lies therein, it is questionable whether it should be used in cases in which fluid is to be obtained for diagnostic purposes only and in which the lumbar route is feasible.

In one of my own cases, that of a patient with a syphilophobia and a typical Marie Strumpell spine, in which it was impossible to obtain fluid at any level below the cistern, a cistern puncture was done and the negative reports obtained upon analysis of the fluid were a very definite factor in dispelling his fear. In certain other cases such as marked hyphosis, lordosis, spina bifida, and Potts' disease, lumbar puncture might be impractical, and if an analysis or drainage of fluid is indicated, a cistern puncture should be done.

A great many investigators, notably the German, state that cistern puncture lessens the frequency and severity of postpuncture headache. Statistics show that six out of every one hundred patients develop a severe headache following lumbar puncture. The pain persists until the fluid withdrawn is reformed and the pressure within the cranium attains its former level. Work by Fremont-

Smith in Boston has shown a wide variation in the rapidity of this process, the variation in time being from eight hours to a little more than three weeks. The explanation is that headache is in all probability due to seepage through the puncture wound. In lumbar puncture routine it is usual to require that the patient remain in bed for twenty-four hours afterward with the foot of the bed elevated. Whereas, after cistern puncture the patient is immediately allowed to assume the upright position. When the patient is up, the fluid gravitates to a lower level and produces a negative pressure within the wall of the cistern with a consequent lack of seepage. These same authors advocate injections of salvarsanized serum by this route in the Swift-Ellis and Ogilvie methods of treating neurosyphilis, its advantage being that the spinal ganglia and roots are less likely to become irritated by the arsenical.

Probably the best field for its use is in treating meningitis, especially the meningococcic variety. It so happens that in this disease the greater amount of pathology usually occurs at the base of the brain and its greater exudate within the cistern. Inasmuch as the antimeningococcic serum, which is used intraspinally, almost universally, is a bacteriolytic agent, it is obviously desirable to have it come in as close contact with as many organisms as possible. Consequently, this is best done by injecting it into the cisterna magna. Frequent and forced drainage is an accepted therapeutic measure in this disease, it having a two-fold purpose — the lowering of intracranial pressure and the removal of exudate and of organisms. It not infrequently happens that an obstruction within the subarachnoid space develops after repeated puncture. In this event it is quite simple to continue effective drainage at the higher level. It has been my practice always to inject the serum into the cistern but to effect drainage by alternating between the two routes and thereby lessening the possibility of blockage resulting from adhesions.

In spontaneous subarachnoid hemorrhage, which is not at all rare, the most disturbing symptom is terrific, unbearable headache. The principal therapeutic measure is drainage until the fluid is free from blood. This can be much more effectively done through the cisterna magna and the relief obtained therefrom is much greater and more prompt than when drainage is effected by the lumbar route. Many cases have been reported of a so-called dry tap, particularly in infants and young children. More often, this is due to faulty technique, but in some cases, regardless of the care taken, fluid cannot be obtained by the usual method. Likewise, there are occasionally certain individuals who have blood vessel anomalies and repeated punctures result in the withdrawal of bloody fluid. Cistern puncture can here be used to great advantage. Withdrawal of cerebrospinal fluid by cistern puncture is often of benefit in coma due to sunstroke. It is occasionally of benefit in uremia and convulsive seizures, in puerperal eclampsia, and seldom in migraine.

In concluding, I would like to emphasize the fact that cistern puncture is comparatively safe if proper care is exercised. That a comparative study of cisternal and lumbar fluids in the absence of blockage shows only slight differences in the cell count, total protein, sugar, and chloride determinations, and no difference in the Wassermann and colloidal gold reactions. It is often a life saving measure in the meningitides in which there is an inflammatory blockage in the spinal subarachnoid space, and in the six per cent of persons who are susceptible to headache following lumbar puncture, the severity and duration of pain is greatly diminished.

ABSCESSED TEETH

If an acute dental abscess follows an unhampered natural course, without associated complications, the swelling and pain leave, but dangers still remain, Robert H. Brotman warns in the August *Hygeia* in an article on "Abscessed Teeth."

DO THE NORMAL CELLS CHANGE TO CANCER CELLS UNDER HORMONAL INFLUENCE?

By PHILIP JAISOHN, M. D.

It has been definitely proven that the cancer tissue cells are not different from normal cells, except that their nuclei occasionally assume a new appearance in form and staining characteristics. Most of them continue to perform their physiological functions and produce the secretions that they had always done. The only essential difference is that the tumor cells do not follow the usual law governing their growth and multiplication. What makes them act that way is the problem which cancer research workers must solve. Lately attention has been directed to the endocrine hormones which may play a part, either directly or indirectly, in creating a condition by which the cells can change from normal to abnormal in the matter of growth and multiplication. Ewing said: "There are ever so many interesting chemical and physical processes going on in the cancer tissue, but the whole subject takes a real meaning only when we learn that the entire play of forces is controlled by a hormone acting in exceedingly small amount."

The sound reason for this statement is obvious to those who have some knowledge of the nature of various endocrine secretions. The hormone from the anterior lobe of the hypophysis stimulates the normal sex cells of the ovary and changes them into the primordial ova. The parathormone, when overly active, produces fibrocystic diseases of bone. I may mention others such as theelin, thyroxin and auxin, all of which produce hyperplasis of tissue to a greater or less extent. It is then rational for us to investigate what part, if any, some of the mysterious secretions of human organs play in the etiological rôle of neoplastic diseases, particularly cancer and sarcoma.

Unfortunately our knowledge of these secretions is still very meagre; in fact, I do not believe we are aware of the existence of all the secretions in the human body. Those few that we know by their names should be studied more fully in order that we may correlate them more intelligently with the causation of pathology. The study of colloid chemistry becomes complicated as we see expressed the quantities and dimensions of the constituents in such small figures that they appear unreal to us. Molecules and atoms are merely symbols to us and we have no conception of how minute they are. It is only with a great stretch of imagination that we try to comprehend the hydrogen ion concentration when expressed in ten millionths of a gram in weight. Yet it is just as real for a tadpole to require as much as five-thousand millionth parts of iodine in water to be able to change into a frog, as for an adult, leading a moderately active life, to require daily foods capable of producing at least 3,000 calories of heat in order to sustain his metabolic balance.

Our knowledge of cytology has progressed in recent years so that we now understand a little about the physiology of cells and their metabolic and chemical processes. The study of cytology has developed two important facts so far and this information may give us new light on the cause of cancer and discovery of a remedy for this deadly disease.

From the early days of cancer investigation it has been known that coal tar produces cancer when repeatedly applied to the healthy skin of man or animal. Recent researches show that the carcinogenic element in tar is composed of non-saturated hydrocarbon molecules which chemically resemble the molecules found in estrin or theelin, the ovarian hormone, which, under the influence of the hormone from the anterior lobe of

the pituitary gland stimulates the normal sex cells of the ovary and changes them into ripened ova. It also resembles the isoprene radicles in vitamin D. Isoprene radicles are likewise non-saturated hydrocarbon bodies; instead of forming long chains as in vitamin A, they are united into a system of condensed rings. They are inert by themselves, but when exposed to ultra-violet rays, change into vitamin D. We know that vitamin D promotes tissue growth, particularly bone.

There is yet another compound known as the basal elements of sterols. Sterols are lipoid fractions found in every living cell; these basal elements are structurally quite or exactly like the carcinogenic molecules of tar and estrin with the essential difference of having hydrogen ions combined in or with their molecules. We can then conceive the reason why tar produces cancer, while the basal elements of sterols do not, because of their difference in hydrogenation. Besides, tar being a chemically foreign substance, is therefore, an irritant to human tissue, whereas the sterol elements being physiological products and endowed with physiological functions, their presence is not only not harmful, but necessary. They are like isoprene radicles, inert by themselves but when exposed to the ultra-violet ray, they convert, or revert, to vitamin D.

Supposing under certain adverse circumstances the sterol elements should lose their hydrogen molecules, they would become more like estrin and tar than isoprene radicles and they could transform into irritants like tar, rather than like estrin as far as their effect on the normal tissue is concerned. The loss of hydrogen ions makes them abnormal constituents and to all intents and purposes foreign elements, and they probably produce the same effect as tar.

There is as yet no conclusive evidence that the sterol molecules change by dehydrogenation, but we know that hydrogen ions contain negative electric charges and they always shift to the positive pole when in a suitable medium. Some metals, particularly potassium and sodium, are very active chemically and set free hydrogen from the water in which they are placed. It is a fact that the blood serum of cancer patients is highly alkaline due to potassium and calcium imbalance. What causes this imbalance is another question waiting to be answered, but we know that such condition does exist. The concentration of potassium and sodium in the blood must have some effect on the constituents of tissue cells which it bathes constantly. If potassium and sodium set free hydrogen ions from water when they are placed in it, it will act likewise in the blood serum when the concentration is high enough. McDonald states that his findings of a large number of cancer cases all showed a high degree of alkalinity in their sera and Willy Myers' independent investigation corroborates it.

With these facts before us, we are justified in formulating a hypothesis. Through some hormonal influence, if the potassium and calcium balance of the blood should become upset there may result a high concentration of potassium in the body fluids. The chemically active potassium then would set free hydrogen ions from the cell contents with which it comes in contact, including the sterols in the cells. The dehydrogenated molecules of sterols will be transformed into something like carcinogenic element in tar.

A group of French cancer specialists have organized a clinic just outside of Paris and treat cancer with the negative charges of electricity obtained from a specially constructed battery. I do not know on what theory they based the idea of instituting such a mode of treatment, nor do I know what success, if any, they have obtained. But the introduction of a negative current may neutralize to some extent hyperalkalinity of the tumor tissue.

The whole problem is still in the nebulous stage and more intensive study is required, but I believe that cancer students are on the right track in directing their attention to the hormonic factor in the formation of neoplasms.

PRENATAL CARE

By EDWIN J. HUMPHREY, M. D.
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THE processes of pregnancy and labor should be normal in a healthy woman, but it seems that civilization with all of its attendant influences has made it otherwise. The gravity of the situation is emphasized when it is brought to our attention by the fact that more than six women out of every thousand lose their lives in delivery, and that the total number of maternal deaths per year in the United States is about seventeen thousand. A large proportion of these deaths is preventable, since they are due to infection or toxemia.

In addition to this high death rate of the mothers, the mortality of the babies is even greater. There are approximately eighty-nine thousand still-births every year in addition to a seven percent mortality of all babies in their first year of life, making an additional one hundred and seventy-one thousand deaths.

In our own state of West Virginia last year there were one hundred and ninety-eight maternal deaths, making a death rate per thousand live births of 5.1, which is the lowest of any year since 1925. There were one thousand four hundred and thirty-one still-births. There was a total of seventy-five deaths under one year per one thousand live births, of which approximately twenty-four per cent were reported as due to congenital or birth injury causes.

It is to be remembered that the above figures are only for mortality and no data is available to give us an index of the morbidity. How many mothers are left as invalids, and how many babies are left handicapped at the very onset of life, no one knows. Physicians, however, soon realize this percentage to be too high.

Any means of lowering the above figures should be of vital interest to all physicians, and particularly to those who are doing any obstetrical work.

A good system of careful prenatal care is our most effective means at the present time because such a large percentage of this mortality is preventable.

An obstetric record sheet should be selected which complies with the general opinions and methods of the individual physician. A record which is thoroughly understandable and one which has some originality is generally much better kept by an individual physician. Do not have too much detail on the record, but do have all necessary data. Make it a routine to keep the complete record on each patient. Many of these record sheets are available, some being standardized, such as the one recommended by the American College of Surgeons. If no one sheet is entirely suitable, modify them and adopt one as your own.

A good history is important. It should be both general and obstetrical. Diseases of childhood such as rickets, scarlet fever, diphtheria, tonsillitis and rheumatism, have their relationship to the condition of the pelvis, heart and kidneys; operations or injuries, especially fractures about the pelvis, may be of importance. A family history of tuberculosis, cancer or insanity may have a bearing. The family obstetrical history may be of great importance. The size of babies at birth frequently runs large or small from a hereditary standpoint. Primary uterine inertia frequently carries from one generation to another.

The knowledge of gonorrheal infection is most important. This disease is always accentuated by pregnancy, and early treatment

is the only means of avoiding serious trouble for the mother.

Inquire into the menstrual history; date of onset; type of interval and regularity; days of duration; occurrence of pain, and the amount of the flow. Review all previous pregnancies, beginning with the date of marriage. How long after marriage was the first pregnancy; number and ages of children; length of pregnancies; miscarriages; type of labors; prenatal and postnatal complications; incidence of infection; milk-leg; breast infections, and condition of babies at birth.

The patient should be asked whether she has headache, constipation, indigestion, vomiting, edema of the face, hands or ankles, bladder disturbances, or any change in vaginal discharge with special emphasis on spotting of blood.

The physical examination must be thorough and complete or some important information may be overlooked. Foci of infection should be ruled out in the teeth, nose, throat and cervix, the latter especially being of much importance, particularly in multipara. In the neck enlarged glands and thyroid abnormalities are noted. The lungs are examined carefully in the usual manner. The detection of cardiac disease may prevent future complications. Upon examining the abdomen, note the umbilicus, scars and hernia; also examine the extremities, especially the legs for varicosities.

A pelvic examination for edema or varicosities of the labiae, vulvae or vagina, the condition of the perineum and cervix is made. On the examining table multiparous patients should always be made to hold their breath and bear down to detect a rectocele or cystocele which may be a troublesome condition when they are in an upright posture.

Pelvic measurement will not be gone into in detail. Any obstetric text-book gives the so-called normal measurements. It is hard to understand how physicians practicing obstetrics can omit this very important procedure. Careful pelvic measurements and examinations are of untold value in forestalling catastrophes, from a mechanical standpoint, during delivery. It is surprising, however, how many patients come to delivery without measurements. It is hard to assign a reason for this omission since the procedure is not difficult and does not require a great deal of training or skill in the average case.

These measurements should not be made until the patient is well into her seventh month. At this time the examiner may not only estimate the type and size of the maternal bony pelvis, but also may obtain a relative index of the size of the baby.

It is to be remembered that a baby's head which is engaged in the pelvic inlet will come through, providing it is not a funnel pelvis. Too little attention is given to the outlet of the pelvis. This is a most important plane to be carefully studied. Many unsatisfactory results to both mothers and babies are from trying to deliver a well engaged head through an inadequate lower plane of the pelvis. A helpful guide is that a pelvis is considered to have a normal outlet if the bi-ischial and posterior sagital diameters at the outlet total 15 c.m., in the presence of a normal subpubic angle. The late Dr. Polak said that if you could span the radius you must look for trouble with the pelvis in delivery. In my personal experience I have noted this to be true in several cases. As term approaches measurement of the height of the fundus and count of the fetal heart rate are helpful. At the same time the presentation and position may be made out. As regards the changing of this presentation and position before onset of labor suffice it to say that most of these procedures are fraught with danger, and especially is the manipulation of the abdomen to be condemned.

A routine blood Wassermann and Kahn should be made at the first visit. If syphilis is present, prompt and vigorous specific treatment is indicated. Give as much therapy as is possible depending on how much time you have before confinement. Despite our efforts some syphilitic babies will be born,

but the percentage of successes justifies our most strenuous efforts in treatment.

Routine basal metabolism tests should be made. Any deviation from the normal, after being taken into consideration with the history and clinical findings should be corrected with the administration of proper dosages of thyroid substance or iodine preparations as the case indicates. Occasionally both thyroid substance and an iodine preparation together are indicated. This therapy should be continued throughout pregnancy and the postnatal period.

Other laboratory examinations such as blood counts, blood chemistry or x-ray study are done only as indicated. I do not mean to minimize the importance of these studies where indicated, but certainly they are not necessary as a routine.

The patients should report for check-up examinations every two weeks until the last six weeks of their pregnancy, during which time we feel their best interests demand weekly checking. At each check-up examination the following are routinely noted:

1. Any questions the patient may have to be answered;
2. Patient's general condition;
3. The pulse rate;
4. The weight;
5. Blood pressure;
6. Urinalysis. A microscopic examination is not necessary in every case. The reaction, specific gravity, presence of albumin, sugar, bile and indican are important, and if any of the above are abnormal a microscopic examination is indicated as well as tests for acetone and diatetic acid;
7. Finally any other special examination needed for such symptoms as the patient may present should be made.

The most common symptom demanding further study is abdominal pain. This pain is usually due to a physiological congestion of a pelvic organ of which the most common is the ovary, or it may be due to stretching tissues. On the other hand there may be any type of intestinal, pelvic or genitourinary pathology found in the non-pregnant woman.

During the last month the size of the abdomen should be followed at the check-up examinations.

The hygiene of pregnancy is to be followed in prenatal care. There are a number of very good pamphlets and books available for the patient both by private agencies and the Child's Bureau of the United States Department of Labor. The physician, however, is looked to for this advice.

The patient should be encouraged to take moderate muscular exercise daily in the open air, but instructed to avoid exercise to the point of overtiring. Daily walks and short drives in the car in the fresh air and sunlight afford all that is necessary. These patients must be cautioned about long drives or any violent muscular strain, especially near a menstrual period in the early months.

Daily baths are encouraged, tub baths being the one of choice for the primipara until the last month, and for the multipara up until the last two months. In the latter months they should use sponge or shower baths.

The teeth should be examined by a dentist as early as is possible. Even a small abrasion of the dentine, or a beginning area of decay may destroy the whole tooth in a few months. Calcium and phosphorus metabolism are of outstanding importance not only for the mother but the baby as well. All obstetric patients should take daily doses of absorbable calcium salts. Cod liver oil or haliver oil may be of value, depending upon the indications.

Daily bowel evacuations are essential. Obstetric patients are prone to constipation because of pressure from the enlarging uterus. For this purpose mineral oil, milk of magnesia, cascara, or small doses of podophyllin are the laxatives of choice.

Concerning sleep and rest they are advised to have at least nine or ten hours each night, one to two hours each afternoon. It is advisable that they sleep in a bed to themselves.

Vaginal discharges may sometimes be very irritating. Douches and suppositories are usually not effective and are not void of danger. Personal experience shows that local treatments with mild antiseptics and astringent dressing powders with tampons, ordinarliy give relief.

For the normal pregnant woman the diet is not changed from the ordinary routine of her life. She should, however, be encouraged to eat at regular intervals, and to be careful in not overeating. An abundance of vegetables, especially the leafy types, fruits and liquids are desirable, with meats once a day, avoiding the rich pastries, fried foods and candies. One or two pints of milk per day are advisable depending upon the amount of gain in weight and the absorption of calcium salts. The diet may be restricted considerably in patients giving a history of dystocia due to large babies, although the result in this respect is very often disappointing. The diet may be restricted in any case where the weight gain is excessive. The average gain in weight for each patient should be between twenty and twenty-five pounds.

The clothing should not be tight, especially about the breasts and abdomen. It may be altered as the abdominal contour changes, and supports added to give relief from pressure. As the breasts enlarge they should be supported from below by a brassiere which does not exert undue pressure on the breast tisues. All these supports must be inspected by the physician if the best results are to be obtained. High heeled shoes are unsatisfactory because of interference with equilibrium. Backache is very frequently relieved by the simple procedure of changing to a lower heeled shoe.

As early as possible the patient should begin to prepare the nipples. This will do much toward preventing pain, fissures and breast infection subsequently during the nursing period. This is best accomplished by daily bathing followed by massage with cocoa butter, alum, alcohol and so on.

Sexual relationship is to be discouraged during the last three months of pregnancy to prevent possible premature labor and infection. It should be advised against near a menstrual period in the earlier months, and particularly if there is any tendency to abortion. This subject may seem of slight importance but I have been personally surprised at the frequency of intercourse during pregnancy, and in some cases even up to the onset of labor.

The pregnant woman should be informed of certain signs and symptoms which indicate that she should communicate with her physician.

1. Scanty urine;
2. Disturbance of vision;
3. Persistent headache;
4. Swelling of face or ankles;
5. Any bloody vaginal discharge, however slight;
6. Recurrent, crampy pains in the back of abdomen;
7. Nausea and vomiting in the later months.

In the next few years the greatest advancement in preventive medicine will be made in prenatal care. We as physicians must provide this care for our patients. If we do not initiate this work ourselves various organizations will do it for us. The United States Department of Labor and the various state departments are putting on extensive educational campaigns for prenatal care among the laity. Women are going to know the difference between thorough and haphazard obstetrics. Lay magazines are advising women as to the care with which their physicians should provide them during their prenatal period. This is but another approach to state medicine. Let us as physicians anticipate future developments and thus lead the procession rather than have our duty forced upon us.

418 Eleventh Street

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TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

Public education has removed most of the obstacles in the way of effective control of tuberculosis. Yet in some respects public education has fallen short of the mark. It has not, for example, brought to the clinic or the doctor's office all persons who have tuberculosis. This in no wise discredits the effort made to persuade people to "let the doctor decide." It points rather to the need of case-finding methods not solely dependent on the initiative of the patient. J. Burns Amberson outlined at the Annual Meeting of the National Tuberculosis Association some principles of case-finding, abstracts of which are here presented.

Case-Finding Methods: Case-finding methods predicated on public education and persuasion to consult the doctor have these weaknesses:

(a) Two-thirds to nine-tenths of patients with early symptoms of tuberculosis have no definite or alarming symptoms. Chronic cough, expectoration, blood spitting and weakness usually mean that the disease is advanced. "Faint glimmering warnings do not bring us up short and send us running for news and succor."

(b) The physician will miss detection of a great many early lesions by physical examination unless he also uses the x-ray.

(c) The tendency to postpone treatment until the tubercle bacillus is found in the sputum is dangerous for by that time, the lesion probably has entered the second stage with cavity formation.

(d) Severity of symptoms is not necessarily a measure of rapidity of spread of the lesions. Particularly in adolescents and young adults serious extensions may occur in a few days.

Facilities and Methods Necessary: Present day case-finding machinery consists of tuberculin testing, x-ray (radiography and fluoroscopy), physical examination, laboratory testing and accessory instruments for differential diagnosis. Since it is not yet possible to examine every member of the population it is desirable to select groups of people who are accessible for examination and in whom tuberculosis is likely to be prevalent. These include: contacts, school children, industrial groups, groups aided by public funds, university students, nurses and army recruits.

In selecting groups to be examined age should be given great weight. Lesions of the childhood type may easily be discovered in children in the age period 2 to 15 years, but most of these are small and tend to heal spontaneously. It is probably more to the point to direct attention to the adolescent high school group. The incidence of serious tuberculosis rises abruptly in adolescence and early adult life, especially among girls. Discovery of the disease in these groups followed by prompt treatment yields excellent results. Fellows, who examined large numbers of employees of the Metropolitan Life Insurance Company, reports that among the cases found who were treated and returned to work the relapse rate during seven years has been only eight per cent.

Race also should be taken into account. The Negro, while he is no more likely to develop tuberculosis than the Caucasian, usually becomes more seriously sick and dies if it does develop. And since the disease in the Negro usually runs a more acute course the dissemination of huge numbers of tubercle bacilli is more likely.

Physician's patients constitute another important group for finding cases of tuberculosis. "The day will come when most physicians will have fluoroscopes in their offices, and will be sufficiently trained to use these, not only as an essential aid in the detection of early tuberculosis, but also as a means of perfecting diagnostic accuracy in many other conditions. The physician will become conscious of the great advantage of viewing the chests of practically all his patients. He will be especially diligent with the susceptible groups mentioned and with other groups such as the syphilitics, the young diabetics, and the silicotics, all of whom are known to have a high incidence of tuberculosis. He will have in mind experiences like that of Fellows, who

discovers two-thirds of his cases on routine examination and only one-third because the patients come in with symptoms, and who finds diagnostic signs on physical examination in only about one-half of those with definite lesions."

Some Case-Finding Principles of Practical Significance, J. Burns Amberson, Transactions, Nat. Tuber. Assn., 1934.

Systematic search for tuberculosis among apparently healthy adults has been a regular procedure used for employees of the Metropolitan Life Insurance Company since 1927. Fellows reports the results in the American Review of Tuberculosis, July, 1934. It is the first routine serial röentgenological study made upon a large number of adolescents and adults. Excerpts of the article follow.

A Study of Tuberculosis Incidence: Since October, 1927, each applicant for *employment* at the Home Office of the Metropolitan Life Insurance Company in New York City, and, at the annual examination since March, 1928, each Home Office *employee* have received, in addition to an average careful and thorough physical examination, a fluoroscopic examination of the thoracic organs. Whenever suggestive signs were elicited by physical examination, or questionable or definite abnormalities were seen under the fluoroscope, stereoscopic chest films were taken. Actually about 10 per cent of the entire group so examined have been x-rayed. Interpretation of the films has followed recognized and accepted standards, but anything less than a definite and characteristic pulmonary lesion was not classified as tuberculosis.

Types of Groups Examined: From October, 1927, to January, 1933, 17,947 applicants for employment were examined at the Home Office, a group made up of 95 per cent girls and 5 per cent boys, the majority about 18 years old. Of the 184 applicants (1.03%) who had a positive x-ray, 51 were classed as active after reexamination, 79 were questionable, and 54 did not return for reexamination.

On January 1, 1933, there were at the Home Office 14,054 employees, of whom about 5,000 have had one or more x-rays of the chest since 1926. In this group there were 501 individuals (3.6%) whose x-ray films disclosed definite evidence of a lesion characteristic of pulmonary tuberculosis.

Of these 501 individuals, 70 per cent have undergone a "cure"; the great majority at the Company Sanatorium at Mount McGregor, New York, a few at some other tuberculosis sanatoria or at home under the care of their family physician. The remaining 30 per cent, who by x-ray examination showed a characteristic lesion, had at no time realized that there had been any disease of the lungs. They denied all symptoms, had never undergone a cure, and simply showed by x-ray examination evidence of pulmonary tuberculosis. The majority of this latter group showed no clinical signs of activity and have remained at work under observation. More than half were classified as "minimal."

The incidence of pulmonary tuberculosis in the group of Home Office employees is relatively high, yet the record shows that the new cases of tuberculosis have decreased markedly since the introduction of the present routine.

Unanswered Questions: The röentgenological survey of these individuals raises several questions. Why is there such a great incidence of tuberculosis by x-ray in this older age-group? Is this group a residue from a heavily infected general population which had such a high death rate 25 years ago? Is there frequently a reactivation of a primary lesion or a superimposed infection in the later adult life? May there be a retention in service of an unusual number of the tuberculous employees? This last possibility may be ruled out, for the labor turnover of those with tuberculosis is about the same as those without tuberculosis.

A Study of Incidence of Pulmonary Tuberculosis, Haynes Harold Fellows, Amer. Rev. of Tuber., July, 1934.

HAS MANY REAL USES

The carefully selected beverage has a definite place in the household, Doris W. McCray writes in the August *Hygeia* in an article on "Committee Acceptance of Beverages," the eleventh of the series under the title, "A Housewife Looks at the Committee on Foods." The hostess may serve a sparkling, cold ginger ale to refresh her guests when there would be no reason for serving food. When she serves a beverage which has been accepted by the Committee on Foods of the American Medical Association, she may be sure that it will not harm her own children or other children.

PRESIDENT'S PAGE

It has been previously pointed out that there are 174 institutions in the United States caring for mental patients. Of this number, 159 are classified as insane hospitals and the remaining 15 as asylums. Three of the 15 asylums are in West Virginia; at Weston, Huntington and Spencer. The negro institution at Lakin is classified as an insane hospital.

Since Dr. Hoge started his fight in 1932 to remedy conditions in our state institutions, there has been improvement. However this improvement, which still leaves much to be desired, can never be of a permanent nature until the entire system of control and management is changed. Our insane asylums, and our other state institutions caring for the sick, will never be a real credit to our state until some form of medical supervision is placed over these medical institutions.

The association expects to sponsor legislation before the next legislature to create a competent medical board, somewhat similar to the Board of Governors of West Virginia University, which will have the appointive power and medical control of the above mentioned institutions. The members of such a board should be appointed from suggestions furnished by the West Virginia State Medical Association. The association should be willing to accept this responsibility because it is the only organization in the state familiar with the medical personnel; hence the only organization capable of making such recommendations.

We feel that the leaders in both political parties will endeavor to assist the association in putting this program over. We believe that neither political party is responsible for the present status of our insane asylums, but that the political system of lay control, which applies to both parties, is responsible.

It is becoming daily more apparent that public opinion is behind the association in our plea for medical supervision and control of our state medical institutions. I take this opportunity to urge the members of the profession to talk this matter over with their legislative friends and acquaintances. An intelligent presentation of the subject to a prospective legislator at this time will do much more good than a last minute telegram next winter.

Roy B. Miller *President.*

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CONTRACT MINE DOCTORS

Dr. R. H. Walker, president-elect of the West Virginia State Medical Association was recently talking to an honorable and ethical contract mine doctor from one of the Southern West Virginia coal camps. During the conversation the mine doctor informed Dr. Walker that many of the mine doctors were opposed to the association, even though some of them were members, because the association was endeavoring to eliminate this form of medical practice.

Let it be said once again that the association is not opposed to contract practice in mining communities, that the association is not endeavoring to eliminate this form of practice, and that the association has gone on record on more than one occasion in the past three years as sanctioning contract mine practice. The association feels, and has so expressed itself, that contract practice is the only answer to competent medical service in isolated mining communities. Contract practice in our mining communities, if properly carried out is not in any way contrary to the principles of ethics of the American Medical Association.

It was brought out by the contract doctor, during his conversation with Dr. Walker, that he had been informed by various coal company officials and by several persons interested in "list" hospitals that the West Virginia State Medical Association was "after his job." We take this opportunity to urge the doctors of West Virginia to secure their information on matters of medical economics, from the association and not from outsiders. We especially urge a close perusal of the columns of this journal each month, which is the official organ of the association.

There are forms of contract mine practice that are opposed by the association. For example in some coal camps the coal company collects a check-off of from $600 to $1000 per month and employs a salaried doctor at from $250 to $400 per month to render the necessary medical service. In the above instance there is a "middleman's profit" which has no place in medical practice. The association is opposed to all forms of contract practice similar to the above.

We can't help but feel that much of the misinformation being circulated in the coal mining communities is being put out by the coal companies that are employing the exact system mentioned in the foregoing paragraph. If that is the case we can readily understand the reason. If the coal companies, through misinformation, can turn their company doctors against the association they can continue to rake off a monthly profit from the medical service which their employees pay for.

We realize and appreciate the position of the salaried contract doctor whose company collects and handles the monthly check-off. He has one of two alternatives. He can either quit or go along with the racket. If he has a family to support he perhaps can't risk the chance of finding another immediate location. If he decides to put up with the injustice, he must suffer in silence. If he complains, he joins the ranks of the unemployed.

That is the system that the association is fighting; not the contract system itself. In other words, the association is fighting for the contract doctor and not against him.

COMPULSORY HEALTH INSURANCE

In England and Wales there are more than 15,000,000 men and women carrying health insurance. The receipts of the system reached more than 31,000,000 pounds ($150,000,000) in 1932 and the expenditures amounted to better than 26,000,000 pounds ($130,000,000). It is small wonder that there is continued agitation for compulsory health insurance in this country. An annual profit of some $20,000,000 looks too good to pass up by the non-medical supporters of the insurance plan.

A few years ago THE JOURNAL published a series of articles on "The Way to Health Insurance" which was published by the University of Chicago Press. We quote one passage from this series, "The framers of the earlier systems of legislation seem to have seldom recognized that the medical profession is the essential factor in the treatment of disease. The records of the formation of the insurance systems of the nineteenth century contain only the slightest reference to the part played by the profession in the preliminary planning that led to such legislation. Employers, labor unions, insurance societies, jurists, and, of course, politicians saw that their special interests were protected. But the medical profession was seldom given even the courtesy of a consultation."

Frederick L. Hoffman, writing in the April, 1934, issue of *California and Western Medicine*, believes that "the situation in this country is duplicating the British precedent. An organization like the American Medical Association can give some attention to the economic aspects of compulsory health insurance, or the socialization of medicine otherwise, but the average practitioner is far too busy with his practice to enter critically into the countless discussions that are taking place."

If compulsory health insurance does invade the United States, it will steal in silently and swiftly, just as state medicine appeared in connection with the treatment of relief cases under the F. E. R. A. In our opinion, compulsory health insurance will never be an open issue that will enable proponents and opponents to line up "for" and "against." It will, instead, creep in, if it comes at all, as a minor consideration of an old age pension bill, or perhaps as a part of the present national relief program. We believe that compulsory health insurance for this country is hanging in the balance today; that a few years will see it either discarded forever or else a part of our system of medical practice.

If there has ever been a time when the organized medical profession should stand shoulder to shoulder with its ideals, it is now. Like the two major political parties, the primary campaign is over and this is the time for harmony within our ranks. We urge every doctor and every county medical society to study this problem of compulsory health insurance so that the opposition of the medical profession may be intelligent as well as vigorous.

TEACHERS' EXAMINATIONS

A few county school boards in the state of West Virginia have recently designated one or more physicians in their respective counties to make all of the physical examinations of teachers. In most instances the teachers are required to pay for their examinations, even though they are denied the right of free selection of physician. Naturally the above plan has met with considerable resentment from the medical profession.

It is reasonable to assume that most of the school teachers in West Virginia have a "family doctor." When a school teacher spends his or her own money for medical service, whether physical examination, treatment or something else, that teacher should certainly have the right of free choice of physician. A county school board has no more right to select a doctor for their

teachers than they have to compel their teachers to buy all their pencils from the Acme department store.

The resentment of the medical profession resulting from such a program as the above is easily understood. When a school board selects a doctor or group of doctors to make all the examinations they imply that the doctors not selected are not capable of making such examinations. Otherwise there would be no reason for their selection.

Let us assume that Dr. A is the family physician for 10 school teachers in his county. Under the above examination program, Dr. A, unless selected as examiner by the school board, must sit by and see his 10 patients, through no fault of their own, compelled to spend their money for medical service with one of his competitors.

We realize, of course, that the school boards have an argument of their own. In past years the physical examinations of school teachers have been little more than a formality. The law required, and still requires, a certificate of good health and physical fitness by a licensed doctor from each school teacher in West Virginia. The county school boards, or at least some of them, feel that their teachers are able to secure such certificates from their family physicians with little if any actual examination. In order to correct this situation they have, in the instances mentioned above, designated certain physicians to make all the examinations in a thorough manner. By following this plan they can make sure that no certificate will be issued until a complete physical examination is made.

There is some merit to the school board argument, but the school boards have attempted to solve their problem in the worst possible way. Instead of calling in the medical profession and conferring with the doctors on their problem, they have taken matters in their own hands. They have slapped the medical profession without realizing that the doctors are interested in all the various phases of medical practice. They have not stopped to consider that the doctors, and the school teachers as well, have an interest at stake.

In past years, if the family doctors did not make thorough and satisfactory examinations, one might be led to believe that the present school boards were acting wisely in keeping the present examinations out of the hands of the family doctors. This argument does not hold water, however, because of the changes of the past year. Prior to the county unit law, these health certificates were signed, as they were supposed to be, by physicians who knew something about the general health of their patients. If this general health was good, the certificate was signed and no charge was made. No school board ever asked for or required a health examination blank. They got only what they asked for, and the doctors got nothing.

Now the school boards want complete examinations and they have made provisions for their teachers to pay for such examinations. The conditions, therefore, are entirely different. In the past the doctors helped out the teachers and the school boards and received nothing in return. Now that examination fees are at last available, some of the school boards feel that these same doctors are not to be trusted, or else are not qualified, to perform an honest job.

Chapter 18, article 5, section 22 of the West Virginia code provides that boards of education shall have authority to require teachers to furnish certificates of good health and physical fitness signed by a licensed physician. This does not give any school board the authority or the right to say what doctors are qualified to sign such certificates. The above code reference was not changed by the county unit law; it still stands just as it was placed in the code. An aggrieved county society or group of doctors should have little difficulty in obtaining an injunction against any school board that attempts to pass upon the integrity or the qualifications of the medical profession.

JOURNAL MANUSCRIPTS

For the benefit of Association members who expect to prepare papers for publication in the WEST VIRGINIA MEDICAL JOURNAL, we suggest the following rules:

Numerals of one digit should be spelled out; numerals of more than one digit should be in numerals. Example: Three doctors performed 27 operations.

Avoid hyphenated words. Many medical terms are one word. Example: Prenatal, not pre-natal.

Avoid excessive capitalization.

Avoid long complicated titles, headings and sub-headings. Articles should be written with as few sub-headings as possible.

Avoid complicated punctuation and sentences. It is preferable to start a new sentence rather than to compile a number of clauses.

Avoid pre- and post- expressions. Say postnatal and prenatal instead of pre- and post-natal.

Avoid underscoring and capitalizing important words and phrases. Importance will usually take care of itself.

All manuscripts should be typewritten and leave a blank space between each typewritten line.

In preparing manuscripts the title should come first, followed by the name and title of the author and the author's address. The street address, if desired, should be inserted at the end of the article. A footnote should designate where, when and before what society the paper was presented.

PHYSICIANS DEATH RATE

From the standpoint of longevity it is better to be a physician than a stable hand, harness worker, aviator, cigarette maker, lockmaster, sailor, night watchman, garbageman, postmaster, inventor or teamster. On the other hand physicians and surgeons have a higher death rate than garage hands, school teachers, firemen, mail carriers, general laborers, lawyers, cemetery keepers, professors and truck drivers.

The above information was gathered from a recent report made by Miss Jessamine S. Whitney, statistician of the National Tuberculosis Association, who has just completed a five year study of mortality statistics based on data of the United States Census Bureau. This survey includes all gainfully employed males from the age of 15 to 64.

The average death rate of the group per 100,000 population was 8.70. The highest death rate occurred among hostlers and stable hands, 36.22. The lowest death rate was among college presidents and professors, 2.69. Physicians ranked two points higher than the average at 10.69. Other figures: lawyers 7.89, clergymen 10.33, inventors 17.65, truck drivers and chauffeurs 6.19, firemen 6.71, aviators 28.73.

In the matter of suicides, physicians were also slightly higher than the average. Lawyers were lower. There were more suicides among unskilled laborers than among professional men. The suicide rate among farmers was far below the average. However, the suicide figures for farmers were compiled before the A. A. A. and the 1934 drought.

Miss Whitney's study presented some interesting facts on tuberculosis. The lowest death rate from tuberculosis was found among the highest economic bracket. The highest rate among the lowest bracket.

ABNORMAL CONDITIONS

Teething should not be looked on as a diagnosis for an abnormal condition unless everything else has been excluded by the physician after a thorough examination of the child. A disturbance much more serious may be fomenting. For instance, teething is often accompanied by irritations of other mucous membranes in the buccal cavity; and although teething may have played a rôle in the production of a condition, the diagnosis must properly be tonsillitis, pharyngitis or coryza, as stated in an article by Dr. Abraham Tow in August *Hygeia*.

COUNTY SOCIETY NEWS

MONONGALIA COUNTY

The eighth regular meeting of the Monongalia County Medical Society was held at the Morgantown Country Club on the evening of August 7 and was opened with a dinner at 6 o'clock. Following this the assembly was called to order by the president, Dr. B. M. Stout.

Following several committee reports, the society went on record commending Dr. A. E. McClue, state health commissioner, for his stand in making it compulsory for barbers and beauticians to secure their Kahn tests from private laboratories.

On motion of Dr. Trotter, it was agreed to invite Dr. J. Bankhead Banks, medical examiner of the state compensation department, to attend one of the future meetings of the society to discuss the difficulties with compensation x-ray rates.

The scientific program was presented by Dr. Waitman F. Zinn of Baltimore on "Acute Infections of the Middle Ear and its Complications." This was a most instructive talk dwelling chiefly on conditions found by the general practitioner. It was interesting and well received. Those who took part in the discussion included Dr. C. B. Wylie, Dr. F. T. Scanlon, Dr. J. N. Simpson, Dr. R. H. Edmondson, Dr. Russell Wolfe, Elkins; Dr. Harry Thomas, Dr. S. S. Hall and Dr. George Traugh, Fairmont; Dr. H. H. Haynes, Clarksburg; Dr. B. S. Rankin, Kingwood and Dr. A. V. Cadden, Hopemont.

There were 22 members and 16 visitors in attendance.

G. R. MAXWELL, *Secretary.*

GREENBRIER VALLEY

The Greenbrier Valley Medcial Society met at the Greenbrier Hotel, Ronceverte, on the evening of August 21 with a good attendance. Following a dinner at 7 o'clock, the program was presented by Dr. R. H. Walker, Charleston, President-elect of the West Virginia State Medical Association, and Mr. Joe W. Savage, Charleston, Executive Secretary.

Both Dr. Walker and Mr. Savage talked along lines of medical economics, placing particular stress upon the work of the association for the organized medical profession. Both talks were well received and discussed by the members present.

A. G. LANHAM, *Secretary.*

FAYETTE COUNTY

The August 14 meeting of the Fayette County Medical Society was held at the Hill Hotel, Oak Hill, with Dr. W. P. Bittinger, President, presiding. During the business session it was moved and carried that the state venereal department be condemned for attempting to have the county health officer establish a free venereal clinic in Fayette county. It was pointed out that the members of the society had always taken care of and would continue to care for indigent cases when necessary medicines are furnished by the state health department.

A move was also started to have the Fayette county health officer, Dr. H. H. Puckett, taken in as a member of the society.

The scientific program was presented by Dr. W. E. Vest, Huntington, on "Lung Abscess" and Dr. G. E. Gwinn, Beckley, on "Newer Developments in the Treatment of Tuberculosis." Discussion of these two very interesting papers was opened by Dr. S. M. Bittinger of the North Carolina State Sanitarium, Sanitarium, North Carolina, and was also discussed generally by the members present.

Lunch was served and a get-together social hour was enjoyed by all present.

RALPH HOGSHEAD, *Secretary.*

BARBOUR COUNTY

A special meeting of the physicians of Barbour county was called on the evening of August 16 to protest the action of the Barbour County School Board in designating two physicians to make all the physical examinations of school teachers. It was resolved at the meeting that the school board exceeded its authority in making such a designation, that the teachers should have free choice of their examining physicians, that the designation of special physicians to make these examinations is a reflection on the honesty, veracity and fidelity of the physicians not designated and the school board was requested to rescind its order so that every school teacher could have the right of free choice of examining physician.

There were 10 Barbour county doctors and two visiting doctors in attendance.

W. SCOTT SMITH, R. P. GOOD, *Committee.*

LOGAN COUNTY

The Logan County Medical Society held its regular meeting at the Aracoma Hotel, Logan, on August 15th at 8 p. m.

Dr. Oscar B. Biern of Huntington presented a paper on "The Medical Aspects of Chloecystitis and Cholelithiasos."

Dr. Richard B. Easley also of Huntington read a paper on "Important Points in the Treatment of Head Injuries."

The society accepted Dr. Thomas Frederick Farley of Holden, as a member of the society.

V. A. DEASON, *Secretary.*

CABELL COUNTY

A novel program was carried out for the August 9 meeting of the Cabell County Medical Society which was held at the Hotel Pritchard, Huntington. There were six essayists on the program. Dr. Oscar B. Biern was given two minutes for introductory remarks and the entire program was completed in 32 minutes, according to schedule.

The program consisted of a symposium on "Anterior Poliomyelitis." The essayists, with their subjects, were Dr. Raymond Sloan, "Etiology and Epidemiology"; Dr. Richard B. Easly, "Pathology, Neuropathology and Laboratory"; Dr. George M. Lyon, "Symptomatology and Diagnosis, (childhood type)"; Dr. I. I. Hirschman, "Symptomatology and Diagnosis, (adult type)"; Dr. W. D. Hereford, "Treatment, Medical and Symptomatic," and Dr. Francis Scott, "Treatment, Acute Orthopedic."

Immediately following the clocked program, the members of the society visited the Fesenmeier Brewery at Huntington.

EDWIN MATTHEWS, *Secretary.*

TYLER-WETZEL

The regular meeting of the Tyler-Wetzel Bi-County Medical Society was held on the evening of July 17 at the War Memorial Building, New Martinsville. A very interesting paper on "Placenta Praevia" and "Toxemias of Pregnancy" was presented by Dr. Carl S. Bickel of Wheeling.

G. M. HARSHA, *Secretary.*

COMING MEETINGS

CONGRESS OF PHYSICAL THERAPY

The thirteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held at the Bellevue Stratford Hotel, Philadelphia, on September 10-13, inclusive. September 14 will be devoted to hospital clinics, detailed announcement of which will be made by bulletin during the clinical session.

POSTGRADUATE ASSEMBLY

The International Assembly of the Inter-State Postgraduate Medical Association of North America will be held in the Public Auditorium, Philadelphia, on November 5-9, 1934. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with other information, appears on page 16 of this journal.

All members of the West Virginia State Medical Association are cordially invited to attend. The registration fee of $5.00 admits all members of the profession in good standing.

MEDICO-MILITARY SYMPOSIUM

The 1934 Medico-Military Symposium for medical department reserve officers of the army and navy will be held at the Mayo Clinic from October 7-20 inclusive. This is the fifth annual inactive duty training course to be held and will follow the plan of clinics during the morning hours and medico-military work during the afternoons and evenings.

Applications for the course should be made either to the corps area surgeon, Seventh Corps Area, Omaha, Nebraska, or to the district medical officer, Ninth Naval District, Great Lakes, Illinois. The course of study is extended without charge by the Mayo Clinic and one hundred hours' credit will be given those who complete the course.

TUBERCULOSIS MEETING

The thirteenth annual meeting of the West Virginia Tuberculosis and Health Association will be held on September 4 and 5 at the Stonewall Jackson Hotel, Clarksburg. Delegates are expected from every county and city organization and all other persons or groups interested in the work are invited to send representatives.

Among those who will appear on the program will be Dr. Kennon Dunham, President of the National Tuberculosis Association; Dr. Roy Ben Miller of Parkersburg, President of the West Virginia State Medical Association; Dr. G. R. Maxwell, President of the West Virginia Tuberculosis and Health Association; Dr. H. H. Esker, President of the Harrison County Medical Society; Dr. A. V. Cadden, Acting Superintendent of the Hopemont Sanitarium; Dr. George F. Evans, Clarksburg; Mrs. Kathryn Trent, Charleston, and others.

The International Society of Radio-Biology has announced the International Congress of Electro-Radio-Biology to be held in the Doges Palace at Venice, Italy, on September 10-15, 1934.

THE BARBER'S ITCH

The following letter was received recently by Dr. A. E. McClue, state health commissioner and ex-officio secretary of the Barbers and Beauticians Examining Board, relative to the physical examination and fee which the writer was called upon to produce:

Parkersburg, W. Va.,
August 12, 1934.

Dr. McClue,
Charleston,
West Va.

Inclosed you will find application, and etc. For almost fifty years I have been a democrat. I have continued to give the party my undivided support through thick and thin. I have stuck to them in defeat, and when they were victorious. I have eulogized them with tongue and pen when it was against the interest of my own business. For years my faith was as strong in the democrat party as it were in Christ. And when the party was swept into office by a tidal wave of resentment and hope, I crowed louder than the chanticleer on a frosty morning.

And since the enactment of their many progressive laws, such as the barber's license law, the consumers tax law, I have gave them my money, I have gave them my blood, I have sent them my picture as I would a sweetie, I have pledged my word and honor under the seal of W. Va., and secured the signature of two reputable citizens that all my statements are true. I have had my heart tested, and my patience tried; besides I have paid consumers tax, capitation tax, gas tax, cigarette tax, dog tax. I have bought hunting and fishing license, I have paid for permits, and have contributed to all other forms of tax and license which is added to the cost of living. And still I am willing to put up my right eye and have my finger prints taken, and if it be necessary be sterilized; so my family will not increase so great that I cannot enjoy life as a barber whose average wage is something near ten bucks a week. Now about all I have got left is a strong will and determination, a family of seven, (all have good appetites); but I must put aside a sinking fund for the furtherance of democracy in the land of the fee.

UNUSUAL THYROID CASE

Frank J. Smith, writing in the *Journal of the Missouri State Medical Association*, March, 1934, issue, reports a very interesting and unusual case relative to an anomalous position of the important structures in the neck in relation to the right lobe of the thyroid The case was that of a young man with diffuse toxic goitre with the usual symptoms and signs, and after adequate preparation was operated upon.

The left lobe of the thyroid was found to be profusely enlarged and no difficulty was encountered in sectioning most of this lobe. There was found to be an unusual pulsation in the right lobe and to obtain a better exposure the prethyroid muscles on the right were divided longitudinally. After this adequate exposure it was found that the common carotid and internal jugular vein ran directly through the enlarged lobe. It was very wisely decided not to resect this lobe because of the grave danger of injuring these important structures.

He gives two important reasons for reporting the case, namely:

(1) The condition may be more frequent than the literature indicates, and if it is, the surgeon must be aware of the existence of such anomaly.

(2) It seems justifiable to split the ribbon muscles in any condition where either lobe is unusually enlarged and pulsation more marked in the enlarged lobe, as it was in this case, thereby giving a clear view of the operative field rather than trying to retract the gland inward.

WOMAN'S AUXILIARY

AUXILIARY PROGRAM SUGGESTIONS

Mrs. M. F. Petersen, President, and Mrs. V. E. Holcombe, Chairman of the program committee, feeling that a successful Auxiliary administration depends upon the arrangement of advance programs, submit the following suggestions:

First, the attention of each county Auxiliary is directed to the health magazine *"Hygeia."* It is recommended that at each meeting of the auxiliaries some member give a review of *Hygeia* for the past month. Every member is further urged to subscribe to *Hygeia* and to see that her old copies of this magazine are left in doctors' offices, public reading places, etc. Auxiliaries are also requested to hold some function during the year for the purpose of procuring funds to purchase *Hygeia* for public schools and libraries.

Philantrophic work for each Auxiliary should be followed according to the various needs of the community in which the Auxiliary exists. For the state program, the doctor's pension fund is recommended. This project should be of interest to every member of the Auxiliary.

Members should bear in mind that the Auxiliary is primarily a social organization. At least one large tea for the incoming and outgoing officers should be given by each county Auxiliary. The treasury of each Auxiliary should be drawn upon for expenditures of this kind.

An active public relations chairman is emphasized for every Auxiliary organization. A well schooled Auxiliary member reaches out into every phase of woman's organization work. A doctor's wife takes a part, generally a prominent part, in public welfare work, parent-teacher work and federated group activities.

It is recommended that at least one open meeting be held to which should be invited officers and leaders of all important organizations of women within the county. At such meetings an educational program should present the aims and ideals of the medical profession.

A legislative committee for each county Auxiliary is emphasized to study health laws. A legislative luncheon during the session of the state legislature is recommended, during which information relating to the current medical bills can be presented by an officer of the state medical association. Discussions of state health laws and laws of the community in which the Auxiliary is located are suggested.

Articles prepared by various doctors throughout the state and also by Auxiliary members available for programs are:

"Pure Food and Drug Act"; "Revolutionary Treatment of Poliomyelitis"; "Middle-aged Woman and What She is Worth"; "Factors Influencing Human Behavior and Their Relations to Mental Health"; "The Modern Care of Teeth."

A book review of "10,000,000 Guinea Pigs" by Mrs. M. I. Mendeloff is also available.

It is the earnest desire of the president and chairman of the program committee that members of the Auxiliary send in their own ideas and suggestions for programs so that they may be listed and made known to all the county Auxiliaries over the state. Auxiliaries desiring any information about programs or the material available should write to either Mrs. M. F. Petersen, 2103 Hart Street, or Mrs. V. E. Holcombe, 1630 Quarrier Street, both of Charleston.

The two aims most earnestly recommended to every Auxiliary are health education and the doctor's pension fund. If each county Auxiliary will limit its activities to these two items alone for the coming season much will be accomplished both for the medical profession and the public good.

ANIMAL EXPERIMENTATION

For about 2,300 years, surgery and medicine, with the single exception of the discovery of smallpox vaccine in 1796, were practically at a standstill. During the past fifty years, however, medicine has been revolutionized, and countless millions of lives have been saved. Through the successful public demonstration of anesthesia in 1845 by William Morton and shortly afterward through the introduction to the world of aseptic surgery by Lord Lister, much pain has been alleviated. This miraculous advance in medicine would have been much delayed without animal experimentation.

When it is realized that more pain and suffering are inflicted on animals by hunters and trappers in one day than have been inflicted on animals through the whole history of animal experimentation, one will appreciate the wisdom of the late Charles W. Eliot of Harvard when he said, "The humanity which would prevent human suffering is deeper and truer humanity than the humanity which would save pain and death to animals."

A. M. A. PROCEEDINGS

(Continued from August)

JUDICIARY COMMITTEE

Dr. George Edward Follansbee presented the following report of the Judicial Council:

1. Resolution from the House of Delegates of Oklahoma: This resolution provides that the American Medical Association adopt policies by which it shall not approve any hospital or other institution for any purpose unless and until it has been officially approved by the medical society of the county in which it is located.

The terms of this resolution are so broad and indefinite that the Judicial Council believes them to be unpractical. It is also of the opinion that the question of approval or disapproval of the hospitals, or other institutions of the country should be based on a uniform standard and appraisal rather than on such varying standards as would be the case if the appraisal were the function of the local medical society. This opinion is not changed by a provision in the resolutions granting to a disapproved institution the right of appeal to the American Medical Association.

The Council is of the opinion that, so far as the Council on Medical Education and Hospitals goes in obtaining information and laying down the principles governing approval, its work is well done and not open to criticism. However, it may be advisable in establishing its standards for approval to extend its field of inquiries beyond the professional and economic features into the ethical as well.

For the foregoing reasons the Judicial Council disapproves the resolution.

2. Resolution presented by Dr. Ben R. McClellan, Ohio: This resolution asks that renewed attention and emphasis be placed on an action taken by the House of Delegates in 1924.

The Judicial Council recommends its adoption. The resolution is as follows:

WHEREAS, There are occasional evidences of advertising, publicity and propaganda by certain large clinics in violation of the proper ethical and professional restrictions placed on individual physicians; therefore be it

Resolved, By the House of Delegates of the American Medical Association at its Eighty-Fifth Annual Session in Cleveland, June 11 to 15, 1934, that attention of the county medical societies be called and emphasis again be placed on the following declaration of policy and principle incorporated in resolutions adopted by this body in 1934:

1. Publicity by clinics, hospitals, sanatoriums and other semipublic medical institutions as to quality of work done implies unusual and exceptional ability and efficiency on the part of their professional staffs and therefore is advertising of the medical men concerned. This type of advertising distinctly savors of quackery and is unethical.

2. Publicity by any such institution stating or implying that by reason of its exceptionally fine equipment and material resources, it is able to, or does, give the public better medical service than similar institutions are able or willing to render, is advertising for purposes of self aggrandizement. Statements of this type are frequently exaggerated and misleading, and are detrimental to the best interests of the public, of the institution concerned, and of true medical progress. Publicity of this kind is unethical.

On motions of Dr. Follansbee, duly seconded and carried, the report of the Judicial Council was adopted section by section and as a whole.

Dr. Emory Hill, Section on Ophthalmology, presented the following resolution which was adopted and carried:

WHEREAS, It has come to the attention of the officers of the Section on Ophthalmology that some hospitals employ optometrists to prescribe glasses; and

WHEREAS, The members of the section are convinced that this practice is not to the best interest of the patient; and

WHEREAS, The only reason for such an unprofessional method seems to be monetary reward to the hospital; and

WHEREAS, The younger ophthalmologists need practice in refraction which is best secured under the direction of skillful physicians devoting themselves to the treatment of diseases of the eye; be it

Resolved, That the Section on Ophthalmology of the American Medical Association hereby registers its disapproval of the employment of optometrists by hospitals; and be it further

Resolved, That the House of Delegates of the American Medical Association be urged to institute the necessary measures to stop this pernicious invasion of the practice of medicine.

The election of officers was then held and the following were elected:

President-Elect, Dr. James S. McLester, Birmingham, Alabama.

Vice President, Dr. George G. Reinle, Oakland, California.

Secretary, Dr. Olin West, Chicago.

Treasurer, Dr. Herman L. Kretschmer, Chicago.

Speaker, Dr. F. C. Warnshuis, Grand Rapids, Michigan.

Vice Speaker, Dr. N. B. Van Etten, New York.

Trustees, Dr. R. I. Lee, Boston and Dr. Allen H. Bunce, Atlanta.

Judicial Council, Dr. Emmett P. North, St. Louis.

Council on Medical Education and Hospitals, Dr. Fred Moore, Des Moines, Iowa, and Dr. John H. Musser, New Orleans.

Council on Scientific Assembly, Dr. Irvin Abell, Louisville, Ky., and Dr. Cyrus C. Sturgis, Ann Arbor, Michigan.

Atlantic City, New Jersey, was selected as the place for the 1935 meeting.

Upon the request of the West Virginia State Medical Association affiliate fellowships were conferred, among others, upon Dr. William Gaston, Clarksburg, and Dr. H. P. Linsz, Wheeling.

The House of Delegates adjourned sine die at 3:25 o'clock p. m., on the afternoon of June 14, 1934.

THAT HEART OF YOURS

"That Heart of Yours" by Calvin Smith, M. D., has been published by the J. P. Lippincott Company of Philadelphia, Pa. The book contains 200 pages with illustrations in color and black and is priced at $2.00.

This is a valuable book for those who have, or think they have, heart trouble. It is a message of optimism and heart care for hurrying humanity. Without alarm the author tells about the heart in illness and in health, in distress and in comfort, at work and at rest, as any physician would tell a patient face to face if time permitted the full recital of the intimate details of heart care.

The purpose of this book, as the author states in his foreword, is to supplement and amplify the information which physicians give to a heart patient when time permits and when the patient is in a receptive mood. With the newer understanding of heart affections and with the advance of modern methods of study, the once prevalent dread, horror and hopelessness of heart impairment have beaten a hasty retreat and given place to encouragement, confidence, and optimism for every heart afflicted. Although the conquest of heart trouble has been made by modern medicine, the conquest of troubled hearts rests largely with the individual. The author is well known as a pioneer in the modern study of the human heart. He writes in a cheerful, optimistic vein with the authority of rich experience and with the confidence born of knowledge.

DISEASES OF THE EYE

The fourteenth revised edition of the Manual of the Diseases of the Eye for students and general practitioners has been published by William Wood & Company, Baltimore, Md. The author of this book is Charles H. May, M. D., Consulting Ophthalmologist to the Mt. Sinai Hospital, to Bellevue Hospital, French Hospital, New York, and to the Monmouth Memorial Hospital. The volume contains 496 pages with 376 original illustrations including 25 plates with 78 colored figures and costs $4.00 per volume.

The thirteenth edition of this manual appeared in June, 1930 and was reprinted in July, 1932 and again in June, 1933.

The great difficulty in preparing a book of this sort is to say enough but not too much. With this idea in view, the author has made the volume sufficiently comprehensive, up-to-date and yet of limited size. This book is recommended as a means of supplying a foundation to which further knowledge may be added by reference to more extensive and comprehensive text-books.

INTERNATIONAL CLINICS

The Volume Form of the quarterly, "International Clinics", is a collection of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest. These clinical lectures and original articles are presented by leading members of the medical profession throughout the world.

"International Clinics" is edited by Louis Hamman, M. D., visiting physician, Johns Hopkins Hospital, Baltimore, Md. It is presented in four volumes of 300 pages each. There are many illustrations in colors and black. The volumes are priced at $3.00 each and are not sold separately.

This book is published by the C. V. Mosby Company of St. Louis, Mo.

The West Virginia Medical Journal

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JAMES R. BLOSS, *Editor-in-Chief* . . . . . Huntington

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THE PSYCHONEUROSES*

By A. L. OSTERMAN, M. D.
Wheeling, W. Va.

THE psychoneuroses may be said to be comprised of that vast array of minor mental and nervous ailments which occur in individuals or personalities frustrated in adequate objective realization of their primitive libidinous urges at adult levels. They may be regarded as borderline psychogenic disturbances, intermediate in position between the so-called normal on the one hand and the frank psychoses on the other. The difference between the three states is merely one of degree or quantitative change and not of real difference. The normal individual shows the same mental mechanisms which are found exaggerated and distorted in the neurotic and still more grossly deformed in the psychotic. Indeed it is no exaggeration to say that any average individual under proper circumstances of frustration may be converted into a psychoneurotic. Certain individuals require greater provocation and higher degrees of frustration and are by inheritance possessed of a more stable nervous system. Were this fact not true, we should all be neurotic.

The psychoneuroses are ubiquitous and prevalent throughout the civilized world. There is no physician, whether engaged in general practice or any of the specialties of medicine, who has not seen them. Psychoneurotic states, either alone or associated with organic disease, constitute fully fifty per cent of medical practice.

Despite this widespread occurrence there are perhaps few clinical entities so poorly understood and so generally mishandled as the psychoneuroses. The medical student leaves school with vague and imperfect knowledge of them, while even the best of physicians in actual practice find their eternal complaints rather irksome at times.

It must be confessed, however, that the ultimate, final causation of the psychoneuroses is unknown. A number of very valuable theories or hypothesis, eight in number, have been adduced to explain the etiology of the psychoneuroses. Most of these are fairly plausible and have more than a grain of truth in them, but not one of them is entirely adequate to explain all neurotic manifestations. These theories fall easily into two divisions—the somatic and the psychogenic. The somatic schools hold that there is always an organic, structural, or physiologic change in the metabolic pro-

*Read before the W. Va. State Medical Association at Huntington on May 15, 1934.

cesses of the neurotic individual, whether capable of proof in the present light of our knowledge or not. The psychogenic or psychoanalytic schools on the other hand support the view that the cause of the psychoneurosis is purely psychic without physical alteration necessarily and is due to intrapsychic conflict.

A brief review of the more important somatic concepts follows:

(1) The organic or pathologic theory of the neuroses postulates a definite structural or physiologic alteration in the nervous systems of individuals afflicted with neuroses. These changes may not be demonstrable by our present methods of research or investigation and must be left to future developments of ultramicroscope, ultrabiochemistry, and ultraphysics. Crile has shown that fear and intense emotions may cause cellular change. It is thought that excessive fatigue, mental and physical, prolonged starvation, excessive intercourse, and masturbation may cause similar changes. Concussion, toxic products of infectious disease, alcohol, and chemical toxins may all produce structural changes in the nervous system and so produce neuroses. In refutation, the psychoanalysts assert that the above conditions only serve to precipitate, not to cause, the neuroses; further, that most individuals are exposed to some of the above factors and yet many do not develop neuroses.

(2) Cajal, the famous Spanish neurologist, advocates an ingenious mechanistic somatic theory. He contends that impulses travel in the brain from one cell body to another by way of the synapses; that if there be a synaptic interruption of impulses at various levels, neuroses result. If the synaptic interruption should occur in the cortex or subcortex, the purely mental or intellectual symptoms, typically seen in psychasthenia, result; if the synaptic interruption should occur at lower levels, say at the basal ganglia, then the physical signs occur—the paralyses, anesthesiae, and contractures of hysteria. This theory has the value of unsubstantiated armchair philosophy.

(3) A third somatic theory is the behaviouristic or conditioned reflex theory of Pavlov and the Russian school. Here "all thought is regarded as a complex reflex response, an echo of conditioned motor patterns". Simple reflex patterns are laid down in childhood and are elaborated into more complex patterns in the adult. The failure of integration of reflexes or a disintegration of those already formed leads to anomalies of conduct seen in the neuroses. Children and neurotics are said both to acquire and to lose conditioned reflexes easily. This is the only theory in the entire group which abrogates a defective heredity.

(4) Another school of thought would ascribe all neurotic symptoms to minor disturbances or dysfunctions of the endocrine glands. It is well known that an acute mania may develop in thyrotoxicosis. It is possible that definite but at present unrecognized endocrine imbalance may produce neurotic states. For instance, overfunction of the medulla of the adrenal may cause nervousness, insomnia, anxieties, anguish, palpitation, disorders of appetite, and the like. Cannon and Crile have shown the relationship which exists between the emotions, such as fear, anger, and the adrenals. Which is the cause, which effect, is doubtful.

(5) Still others claim that imbalance of the anatomic or vegetative nervous system in man may produce many symptoms observed in neurotics. Some neurotics may be sympathicotonic and excitable; others may be vagotonic with nervous symptoms referable to heart, lungs, or gastrointestinal tract. Gowers has described vasovagal attacks of anxiety, palpitation, fear of vague impending danger, which are analogous to states of anxiety hysteria.

The three chief psychogenic views as to the origin of the neuroses are:

(1) First, that of suggestion. This inadequate theory simply implies that psychoneuroses are due to suggestion and may be

cured by it. It is related to Babinski's dictum of pithiatism, namely, that hysterical symptoms may be produced or removed by suggestion. While the observation is true, the viewpoint is superficial and does not adduce the true cause of neurosis.

(2) Second, the socio-biologic view. This view, which has many elements of truth, maintains that the genesis of the neurosis rests upon a conflict between the individual and the herd or society. Neurotic symptoms appear when the individual is compelled to forego a realization of his personal desires when these are distinctly antisocial or to the disadvantage of society as a whole. As Wechsler aptly puts it, "It is a tribute society is compelled to pay to the individual for levying on his ego to form a complex social order." It is quite pertinent to remark here that in primitive social groups where the group requirements are few and loose and where the individual has ready access to gratification of his basic desires—hunger, thirst, sexual satisfaction—neuroses are not known. There are no psychoneuroses among savages. The higher one ascends in the complex scale of civilization, the more numerous become the neuroses.

Adler's views of the neuroses belong essentially here. He assumes that the individual is born with an organ inferiority and that the individual spends his lifetime in an attempt to triumph over the handicaps—in an essay to achieve wealth, power and superiority over others. If the individual succeeds, he is normal; if he fails, he is neurotic and his symptoms are his excuses.

(3) Finally, the important psychoanalytic theory of Freud. This is the most generally acceptable of all the theories advanced. It is just as important in the realm of psychiatry as the atomic theory is in the sphere of chemistry. It is the most compatible of all present day theories in its explanation of the psychoneuroses.

Freud conceives of all mental processes as falling into two great spheres—the conscious mind or ego, which stands in relation to reality, and the subconscious or unconscious mind, called the id, which is most important in the production of the neuroses. The subconscious mind or id is surcharged with energy derived from the libido—a term descriptive of the whole mass of primitive sexual urges and cravings. The id or unconscious is ever at war with the real or conscious ego which is largely moulded by the ethics, esthetics, conventions, religious views, and education of the individual. Standing midway between the id and the real ego is the preconscious, the ego ideal. The ego ideal is the censor of all libidinous ideas or of all complexes, arising in the unconscious or id and attempting to reach consciousness. The ego ideal promptly suppresses those libidinous ideas which would cause pain to the real ego or allows them to escape to higher conscious levels only if they are effectively disguised or distorted. The ego ideal is in essence the conscience, it is the super critic of the ego, and from it arises the feeling of guilt.

The theory of psychoanalysis holds that there is a definite psychosexual evolution which has its roots in earliest infancy. The infantile sexual development may be depicted in these stages:

(1) During the first stage or period of the first two years the libido is concerned most with the individual's own body and its workings, and is therefore interested in the processes of nourishment and excretion. This is the oral, anal, and urethral stage and is spoken of as autoerotic or narcissistic.

(2) The next period of development is a direction of the libido from one's own body to that of another individual, generally of the same sex. This is the period of the incestuous complex or oedipus complex when the male infant identifies himself with the male parent. If the libido be directed to the siblings (brothers), the effect is homosexual. This phase of pregenital organization occurs at two to four years.

(3) The third period, from four to six years, marks a completion of genital organ-

ization when the libidinous expression is in a sense comparable to that of the adult.

(4) Finally, the fourth period from six to fourteen years, is a period of latency prior to puberty—a period of quiescence as the genitalization has been completed. There are few neuroses in this period.

All the above partial infantile sexual impulses are repressed as affectively toned memories in the unconscious. When external difficulties render sexual adjustment upon a mature adult basis impossible, the libido becomes introverted, turns upon and within itself, and regresses to the earlier infantile trends above. Neurotic symptoms are then a disguised and vicarious gratification of the libido, a compromise between the ego and the id, an armistice of a bloody battle arranged by the ego ideal or censor.

The psychoanalytic as well as the somatic theories all imply a defective inheritance, a defective anlage, a constitutional tendency in neurotics which is poorly understood.

The psychoneuroses are variously classified in different hands. For our purposes there are three major types of psychoneuroses, namely, (1) hysteria, (2) neurasthenia, and (3) psychasthenia.

Hysteria as a term is derived from the Greek word "hysteros", meaning womb. Even the ancients suspected the erogenous origin of hysteria; they naively believed that the various complaints of the hysterical woman were due to perambulations of the uterus upon elastic ligaments. According to more modern dynamic psychology, hysteria is a regression or fixation psychoneurosis. The symptoms in hysteria are due to an inversion and regression of the libido to the third or genital phase of infantile psychosexual development and a fixation of the libido at this level.

There are two chief types of hysteria—(1) the conversion type; (2) the anxiety type. In the conversion type, by the process of cathexis whereby various parts of the body are genitalized, there are the gross expressions of hysteria in the manifestations of paralyses, pareses, anesthesias, paresthesias, contractures, loss of function of the special senses, and hysterical pain. Fugues, dissociated states, amnesias, automatic writing, are conversion symptoms associated with the phenomenon of dissociation.

The following case is one of conversion hysteria:

A young woman, aged twenty-five years, married, and the mother of four children, developed complete paraplegia, aphonia, and amaurosis. These gross symptoms were proven hysterical. The patient did not enjoy the marital relationship, resented having four pregnancies in rapid succession, and finding no gratification of libido at adult levels, her libido showed introversion and regression to the stage of genitalization. The legs, the eyes, and voice were definitely genitalized by this patient. The patient's triad of symptoms were dispelled eventually. It was succinctly suggested to the patient that she could see well enough to feed herself and that she must perforce do so.

Nurses were forbidden to feed her. After twenty-four hours of hunger, the patient recapitulated by feeding herself. From that time on, vision improved rapidly. The paraplegia was dispelled by a process of suggestion, exhortation, encouragement. The feet were placed on the floor one day, the next, one step was taken, eventually she could walk holding to the nurse or clinging to the bed. Finally, the residual symptom of aphonia was dismissed under suggestion. It was declared with authority that the singing voice returned first, then the whispered voice, and eventually the speaking voice, first in monosyllables, then in complete sentences. From the day the patient was induced to sing a favorite old song—"Let Me Call You Sweetheart", a relic of her courtship days—with the nurse and author, the speech was rapidly regained.

Anxiety hysteria expresses itself as an apparent spontaneous anxiety, fear, agitation, with palpitation, sense of suffocation, profuse perspiration, epigastric fullness, etc. It is thought to be due to a free floating in the unconscious of a portion of the libido, striving for attachment. The case of a young woman who burst into my office with great anxiety, complaining of precordial pain, palpitation, and reference of excruciating pain

down the left arm, is one in point. The symptoms followed a vivid description of the symptoms of an anginal attack by a group of women in the patient's bridge club.

The so-called occupational neurosis is in reality a conversion hysteric state. It is most commonly seen as writer's cramp, but is seen in piano, violin, flute players, in typists, stenographers, blacksmiths, tailors, etc.

Again the so-called war neuroses, misnamed, "shell shock", "gassed", were only manifestations of conversion hysteria. These individuals developed tremors, paralyses, blindness, aphonia, etc., in situations involving psychic trauma.

The question of traumatic psychoneurosis may well be discussed here. In its essence the phenomenon is a form of traumatic hysteria. The condition is precipitated usually by insignificant trauma in a predisposed individual. To escape drudgery, monotony of existence, to fly from reality and to take refuge from personal problems in disease, ultimately to achieve some personal gain, financial or fancied — these are the dynamic motivating principles here. This form of hysteria is most frequently seen in compensation cases and not infrequently is subject to litigation.

The second great class of neuroses is neurasthenia. Neurasthenia according to Freudian formula, always ensues in neuropathic individuals who have indulged in chronic and excessive masturbation. That there may be other causes there can be little doubt. White asserts that it occurs among women of the leisured class who tire themselves out in a round of social activities and have little to do except to direct their interests toward their own persons. Neurasthenia is built upon a triad of symptoms, namely, (1) an excessively easy mental and physical fatigability, (2) an irritability of disposition, and (3) marked hypochondriasis. The last symptom accounts for the myriad and valetudinarian complaints ranging from pressure on the "end of the spine" to a "dropped stomach". The type is too numerous to require concrete illustration.

Psychasthenia is a psychoneurotic symptom complex whose symptomatology also depends upon psychosexual maladjustment and regression to infantile erotic levels, lower than those found in hysteria—to the narcissistic or autoerotic levels. It is expressed clinically by:

1. Tics involving the muscles about the eye, face, neck, most frequently.

2. By phobias or fears. The phobia may be agoraphobia, or fear of wide open places; claustrophobia or fear of shut in places; astrophobia, or fear of thunder and lightning; zoöphobia, fear of animals; pyrophobia, fear of fire and the like. Phobias are psychologically said to represent objectionable, therefore repressed complexes whose emotional tones have been shifted and displaced to an apparently harmless idea.

3. By compulsions, or manias such as kleptomania or compulsive desire to steal, pyromania or the obsessive desire to fire objects, arithmomania or the desire to enumerate objects, etc. The compulsions result, like the phobias, from dissociation of affect from the unconscious idea, but differ in that the affect is also repressed. Compulsion neuroses descend to the anal erotic era of infantile sexuality and the compulsive ritual or ceremonial is a reaction formation opposed to the unconscious wish—a denial or rejection of fulfillment, so absolves the patient from guilt and proves a charm.

CASE ILLUSTRATION

A young woman, aged thirty, for five years had been annoyed by a compulsion whereby she must apply a knife's edge to the throats of her male children. If she did not use a knife, then she felt compelled to lift them up by the hair, abuse them, or maltreat them. Curiously enough, if she read of brutal treatment to children or saw a comic strip wherein the characters kicked a child, she felt constrained to do likewise. She was quite worried that she might actually injure her children. Study revealed that the patient had definite pregenital, that is, homosexual leanings, determined by illicit contacts with a sister when she was four years old.

She was maladjusted in married life, was most devoted to a woman friend, and was so disappointed that her two children were boys, not girls, that she felt constrained to injure them.

Other psychasthenic states occur in "folie de doute" or the indecisiveness due to the ambivalence or equal strength of two unconscious complexes, opposed to each other in the id, and so well matched that neither is capable of achieving the conscious level. An individual so afflicted cannot decide which food to eat first, and so gets up from the table hungry; which shoe to put on first, right or left, and puts on none at all, etc.

Feelings of strangeness, of depersonalization, of anguishes may pervade the psychasthenic conditions also.

The relationship existing between psychoneurosis and dreams can but be briefly mentioned. The psychoneurotic dream represents in each instance the vicarious achievement or realization of tabooed libidinous desires either clearly or disguised by symbolism, telegraphic language, distortion, overemphasis of an unimportant part. The dream is a wish fulfillment. The psychoneurotic who dreams he acquired syphilis really does not want syphilis but he does wish to overcome his impotence. Brill gives a number of fascinating dream analyses in his "Psychopathology of Every Day Life." Time prevents their recapitulation here.

In conclusion, a brief summary of treatment of the psychoneuroses must be made. There are two general modes of approach—(1) The suppressive measures, and (2) the expressive measures.

The suppressive measures tend to strengthen inhibitions and to force the complex into the subconscious to the point of oblivion. Among these methods are:

1. Reassurance. The best reassurance a neurotic patient can have at the hands of a physician is a complete, carefully taken history which is quite time consuming, wherein the evolution and chronology of all symptoms is depicted. This assures the patient of the physician's sympathy and attention and the physician can establish himself in rapport with his patient. The physical, laboratory, röentgenologic and other needful approach whereby the physician can definitely exclude physical disease, if properly done, goes far toward alleviation of milder neuroses. A patient assured of the absence of organic disease is often cured without special psychotherapy;

2. Exhortation;

3. Suggestion. The examiner has found ampules of iron cacodylate or normal saline of importance at times, given intravenously with proper ceremonial rites;

4. Placebos;

5. Hypnosis;

6. Distraction;

7. Persuasion;

8. Will-training;

9. Terrorism;

10. Hospitalization with change of environment, exclusion of overanxious relatives, the use of massage and physiotherapy, and the S. Weir Mitchell régime;

11. Religious assurance. The physician cannot too often supplement his own work by using the aid of the minister and priest.

The expressive types of psychotherapy tend to cause the patient to bring to light all the mainsprings of his neurosis—to face the situation, which is disillusioning, and so to become permanently cured. These methods are rational and directly opposed to suppressive therapy. They comprise:

1. Occupational therapy;
2. Reeducation;
3. Mental catharsis;
4. Psychoanalysis.

In summary, an attempt has been made to present the foremost theories of the psychoneuroses, to classify them, to explain their major symptoms upon the dynamic modern psychology, to discuss the interrelationship of the dream and the neurosis and, finally, to indicate the principal methods of suppressive and expressive psychotherapy.

Wheeling Clinic.

MEDICAL SERVICE—A PROFESSIONAL SERVICE*

By OLIN WEST, M. D.
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I COUNT it a very great privilege to be permitted to attend the meeting of the West Virginia State Medical Association. Intensely interested as I am in all of the component and constituent units of the American Medical Association, I have been particularly interested in your society and those of some other states that have made great progress within the last few years toward perfecting the efficiency of their organizations and in extending their influence for the public good as well as in contributing to the general advancement of scientific medicine.

I have had no opportunity for preparing a formal address. If apologies are due, they are duly offered. My topic as it appears on the program may not mean very much, but it will probably serve as well as any other for the purposes of this discussion.

This is your sixty-seventh annual meeting. I get a thrill in attending a meeting of any organization which has existed continuously for as long as sixty-seven years. A few years ago I had the privilege of attending the meeting of one of our state associations which had been in continuous existence for more than one hundred and fifty years. My feeling is that organizations like this do not exist for a period of more than half a century "just because"; there must be some good reason for their continued existence; they must have worthy accomplishments to their credit; they must have some destiny to fulfill. But it thrills me even more when I see a society that has lived for more than two-thirds of a century, that has achieved worthily and is showing, unmistakably, a determination to do a great deal more than it has ever done to realize fully the splendid purposes for which it was originally created.

Insofar as I have been able to ascertain, the first medical society organized in the United States was organized in the early colonial days in New England. A pioneer physician in a remote community addressed a letter to all other physicians within reach, entreating them to come together "for the purposes of conversation." He stated in his letter that there was great need for conversation among the physicians, not only that they might benefit by their exchange of professional experiences, but also that they might converse about other problems which in that day confronted medicine.

If there was need for conversation among physicians in the early colonial days, certainly there is need for conversation among physicians today. There are many problems of great importance for which solutions will be found only as they are intelligently considered by the members of our societies and as they are dealt with by efficient and militant organizations of physicians in concerted and harmonious action.

The purposes of medical organization are to promote the art and science of medicine and the betterment of public health, purposes that are worthy of the active, unceasing support of every man who has the right to be called physician. The fundamental excuse for medical organization is to be found in the possibility that it may promote the art and science of medicine and improve the public health. Because the service of medicine cannot be performed without a profound understanding of its art and science, nor except through the one instrumentality of a qualified profession, the necessary knowledge

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cannot be developed except through the common effort of all worthy physicians banded together for that purpose in *one* basic organization to which every member should yield undying fealty, and in the support of which he should render the most active, loyal, devoted service of which he is capable.

The professional aspects of medical practice can be preserved only as all worthy physicians band themselves together in *one* basic organization for the accomplishment of that purpose. That purpose can be accomplished only as the major traditions of medicine are upheld and its ideals are preserved and as compliance with fundamental ethical principles based on those traditions and ideals and on the public need is openly demanded and, when necessary, openly enforced. A profession cannot exist as such without ideals of the highest kind. Adherence to ideals can but build traditions, some of which must eventually demand and must receive the wholehearted respect of the profession and must be observed and defended by the profession for the sake of its very own existence.

The first duty of the physician is to medicine. The first duty of the physician is to his patient and to the public. Now these two statements to my mind mean precisely the same thing, for I believe that there is nothing that is good for medicine that is not good for the public, and I believe there is nothing that is good for the public in its relations to medicine that is not good for medicine.

The duty of physicians collectively is to see to it that the necessary methods for the promotion of the art and science of medicine are provided; that the truth is established and that the false is torn down and destroyed; that the benefits of medicine are made available for all men insofar as physicians can accomplish that end; to safeguard their own ranks against the admittance of the unworthy, to uphold professional ideals and to preserve important traditions. And all this means that organization, compact organization, must be had, and it means, my friends, that there must be one fundamental organization of the profession in any country. I stress that "one fundamental organization" because from where I sit it is more apparent, day after day, that with the multitudinous number of independent medical organizations in this country the influence of the one basic organization is, in some respects in danger of being very seriously weakened.

I do not mean to say that there is not need for some special societies and for certain special groups, but I do mean to say that every physician in the United States who is actually interested in the advancement of scientific medicine should be loyal to one fundamental organization that can act as the spokesman for the profession. We have colleges and congresses and conferences and institutes and clubs and societies by the dozens, practically all of them composed of our own members, most of them supposed to be organized for strictly scientific purposes and not organized or equipped for dealing with other matters.

It will be difficult to carry out the defined policies of the American Medical Association if when its officers and representative bodies seek action in legislative halls they are confronted with resolutions, adopted by minor groups, declaring for the adoption of radically different policies. The difficulties are greatly enhanced when the members of such minor groups are first members of the American Medical Association, whose policies are outlined by the chosen representatives of its state and territorial associations with a combined membership of nearly one hundred thousand of the physicians of our country. There are only about 160,000 physicians in the United States, including the old and the young, the active and the retired, the white and the colored, the good and the bad. If the national organization, composed of nearly one hundred thousand of the best of them, cannot and should not speak for medicine then what group can and should speak?

I say, then, that the one fundamental organization of medicine in this country must

have the active, persistent and undivided support of all physicians who are interested in medicine for its own sake and who wish to see its benefits and its influence and service applied for the good of mankind in general.

The basic organization of medicine, as I conceive it to be in the United States, is composed of the component county medical societies, the constituent state medical associations, and the American Medical Association—a federation of the constituent state medical associations—as a national organization designed to carry out the expressed desires and policies of the entire profession in the United States.

Because of the very nature of the service of medicine, the duties of its practitioners are sacred duties, and theirs is a sacred trust that cannot be violated without harm to the cause physicians are supposed to serve, without harm to their fellows or without harm to the public. Because of the very nature of its service the work of medicine cannot be properly done except by those qualified through possession of a comprehensive knowledge of its art and science. But more than knowledge and skill is required of physicians if the cause of medicine is to be fully served and if its benefits are to be fully realized. Physicians who would accomplish those worthy aims must be imbued with the spirit of unselfish service, must have a true understanding of the ideals of medicine, must be fired with the determination to uphold and to perpetuate those ideals, and must order their conduct and their very lives in accordance with the highest traditions. No tradesman, no artisan, without the truly professional viewpoint or void of the impulse of idealism, can ever do the work of medicine, even though he be crammed full of knowledge. And again I say, that there is only one agency through which the service of medicine can be adequately performed, its art and its scientific knowledge properly applied, and its beneficent influences extended for the protection and relief of mankind. And again I say that that one agency is a qualified, humane, idealistic profession free from political domination.

Yet there are powerful influences at work, there are certain tendencies that have developed in certain elements of the profession itself, tendencies that have developed in government, in commerce, in industry, and in what we have come to know of recent years as philanthropy, that threaten to undermine and to overthrow the age-old institution of medicine by the process of destroying the professional aspects of medical service.

There are those, some of them, sad to say, in the profession itself, who decry our principles of medical ethics and denounce them as being moss covered and outworn. The truth is that in the principles of medical ethics is to be found the greatest bulwark, for the protection of the public in its relation to medicine and for the protection of the profession in all of its relations, that ever has been erected. A profession cannot exist without ideals, nor can it discharge its duty to society and to medicine without the guidance of established principles of ethics. It is therefore the solemn duty of the organized profession to adopt, maintain, and when necessary to enforce its own principles of ethics, for when they are overthrown the professional aspects of medical practice will soon be destroyed, the progress of scientific medicine will be retarded, if not stopped, and the people will suffer most.

A tendency toward commercialism has been permitted to creep into medicine in some places. It is confined, in my opinion, to a very minor element of the profession, but the acts of the few commercialistic physicians reflect and react unfavorably on all physicians. The values of medicine are first of all human values not to be measured in dollars and cents, and after that they are scientific values. There is nothing, in my opinion, that will destroy the professional aspects of medical practice more quickly or more completely than its debasement to a commercialistic status. The pernicious tendency toward commercialism should be fought

to the death wherever it appears or by whomsoever it may be fostered. This is not to say that the physician should not be compensated for his services. He should be and must be in order that his work so essential to the public welfare may be properly performed. Nor is it to say that medical societies should not take concern for the material interests of their members, for as a matter of fact that is one of the most important duties of medical societies.

From various sources within late years, especially since this great nation has been precipitated into the very pits of economic, or probably I should say uneconomic chaos, proposals have been offered to the effect that all of the lessons of professional experience should be forgotten and that the age-old institution erected on the basis of the experience and sacrifices and labors of an observant, industrious, unselfish, efficient and constantly progressive profession should be thrown into the discard. For the most part these proposals have come from laymen with little or no knowledge of what is actually involved in the delivery of good medical service, and from professional agitators and amateur agitators, and to a much less extent from men within the ranks of our own profession who have never been called on to tread both the highways and the byways of medical practice. Their proposals involve the mechanization of medical service, the regimentation of physicians, and the utilization of the methods of mass production. The adoption and application of their various artificial schemes will inevitably result in the quick destruction of the professional aspects of medical practice. If the age-old experience of medicine proves anything it is that medical service is essentially a personal service and that the needs of humanity cannot be met through the use of mass production methods.

I am reminded of a story of an old doctor way back in a remote section, who attended a medical society meeting and was very much impressed with the insistence of the speakers that careful records should be kept of every case. The old fellow made up his mind that he would keep a record of his cases, so he bought himself a book. The first patient thereafter was John Smith, a tailor, who had what the old doctor called "pneumony fever." So he put down: "John Smith, tailor, pneumony fever."

Well, John didn't do very well. The fact is he got terribly sick, and the old doctor decided he was going to die. Finally he told John's wife that he was bound to die. The old lady had an idea that if she could just give John some corned beef and cabbage, which John greatly desired to have, he would be much improved. The doctor, being absolutely confident that John was going to pass out, finally agreed that he should have some corned beef and cabbage, whereupon a very remarkable improvement took place and John promptly got well. So the old doctor finished out his account: "John Smith, tailor, pneumony fever; darned sick, corned beef and cabbage; got well."

Within a few days he had another case of pneumonia in Bill Jones, a carpenter. With the experience he had had with John Smith, he tried corned beef and cabbage on Bill Jones, who promptly kicked the bucket. So he made this entry: "Bill Jones, carpenter, pneumony fever; corned beef and cabbage; died. Corned beef and cabbage fine for tailors with pneumony but plays hell with carpenters."

Medicine has to deal not only with the physical aspects of the human being, but it has to deal with that quality, call it what you will—temperament, mind, soul—and that particular factor cannot be dealt with on a mass production basis.

There is only one teacher, my friends, and his name is Experience. The lessons of Experience all teach that medical service is a personal service that can be adequately rendered only on a professional basis, by a qualified subject only to the dictates of scientific truth and its duty to mankind.

I have watched with great interest the promotion of one scheme after another of a purely artificial nature, most of them stimulated by the untoward developments of the present unfavorable economic situation which has existed now for several years, some of them stimulated because medicine itself had allowed to develop certain untoward practices that were making it difficult for worthy physicians to carry on to the best possible advantage. I have been tremendously interested, in watching the development of these artificial schemes, to see how in some instances the adoption of one of them has invariably stimulated the promotion of another of a somewhat similar nature, and how that in turn has stimulated the development of a third. Out of that has been created, in some places, a tendency—an inevitable tendency—toward a deterioration in the quality of service. I am not saying that all experimental plans that have been tried under the auspices of county medical societies have been failures or that they have not been very well conducted. I am not saying that the principle of insurance is wrong. The principle of insurance is all right, but the difficulty comes in the application of that principle in the p r a c t i c e of medicine. Commercial schemes have developed so fast in one of the western states, I am told, that within the last three weeks the law enforcing officers of that state have been compelled to haul up one after another of their promoters and have been successful in some instances in sending them to jail or making them pay fines, all of which should have been done a long time ago.

I believe that many of the artificial schemes that have been promoted recently, within the last two or three years, for providing medical service have tended to destroy the professional aspects of medical practice and thereby to retard the advancement of medical science, to destroy scientific initiative and scientific ambition, and to bring medical service in the communities where these schemes have thriven almost to a dead level, and that a dead level of inferiority. I have no objection whatever to a well considered and well directed experiment under the auspices of the organized medical profession itself in a community, provided that experiment can be undertaken without danger to the professional and public interests in another community. I believe that any experiment that is undertaken by the unanimous consent of a medical society in a county should first be considered by the proper officers of the state medical association concerned to determine whether or not it will have any untoward influence on professional service in some other part of the same state.

All sorts of schemes have been promoted and have been put into effect. There has been a more or less widespread development of the so-called group hospital service principle. I do not know how it is going to work. I doubt very much that it is going to work to the full advantage of medicine itself, because I can but entertain the fear that since some of these group hospital schemes are largely based on purely financial reasons, they may bring the hospitals themselves into the direct practice of medicine, and that the members of the professional staffs of these institutions may before long find themselves dictated to by lay boards and administrators. Now, perhaps I should not give expression to that fear, but I feel it, nevertheless. I would urge, in this connection, that the organized medicine in any community, in any county, in any state, should examine with the most scrupulous care every proposal advanced for the provision of medical service under some new scheme, with a view of determining the possible effect of that promotion on the future status of the profession—on the professional aspects of medical practice.

My plea to all physicians is to uphold the ideals of medicine, to perfect its organization, to preserve the profession *as a profession,* that the art and science of medicine may be further promoted, and that the deepest needs of humanity may adequately be served.

Some of my friends before whom I have expressed views such as I have expressed here today have accused me of preaching. Perhaps it is preaching. I am perfectly willing to resign from the ministry in this particular if somebody else will get up and do the preaching that I believe needs to be done. There are influences at work, and they are powerful influences, splendidly financed, that are engaging in the most active and persistent propaganda, designed, purposely or not, to overthrow the institution of medicine as it has been builded from the experience of physicians over a period of hundreds of years. One of the great foundations has announced openly its determination to promote a frank scheme of compulsory sickness insurance, which means sickness insurance supported by taxation. I ask if you have ever known anything supported by taxation that sooner or later did not come to be politically administered. Other groups are carrying on persistent propaganda apparently designed and intended to undermine the influence of the organized medical professsion in the United States.

There is only one way through which all that can be successfully combated and through which the professional aspects of medical practice can be preserved, and that is through the perfection of medical organization, the development of a more militant medical organization. I know that it is written that the meek shall inherit the earth, but I am frank to say that insofar as I am concerned I would not want to live on an earth where only the meek abided, and in my humble opinion the time has come for medical organization to assume a militancy such as has not yet been exhibited.

THE SURGICAL TREATMENT OF BENIGN AND MALIGNANT LESIONS OF THE STOMACH AND DUODENUM*

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THIS paper is a resumé of the English literature combined with my own surgical experience and observations in several American medical centers, and postgraduate work in the clinics of Cologne, Berlin, Vienna and Budapest.

Only the intractable chronic gastric and duodenal ulcers and gastric carcinoma will be reviewed. The benign lesions such as fibroma, myoma, adenoma, angioma, lipoma, myxoma and cysts will not be considered since they only comprise between one and two per cent of the lesions of the stomach.

Historical: One of the most romantic chapters in surgery deals with the operative procedures on the stomach and duodenum.

Baille published the first description of the pathology of gastric ulcer in 1793. Duodenal ulcer was described by Travers in 1817, by Broussais in 1823 and the symptomatology was described by Abercrombie in 1824. Cruveilhier published accurate descriptions of the anatomy and the clinical course of gastric ulcer between 1828 and 1835.

Present day gastric surgery began with the experimental researches of Gussenbauer and Von Winiwarter which were undertaken in Vienna in 1875. It is interesting to note that Gussenbauer, in 1876, stated that gastric resection might be as useful in the therapy of gastric ulcer as in the treatment of gastric carcinoma.

Billroth, of Vienna, performed the first successful partial gastrectomy in 1881. The same year Woeffler performed an anterior gastroenterostomy, and little did he think that this procedure was to be the foundation

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for the most common gastric operation of this day.

In 1885, Von Hacker performed the first posterior gastroenterostomy and Dr. William H. Welch wrote his masterly account of "Simple Ulcer of the Stomach." Billroth successfully removed a pyloric carcinoma and his procedure of suturing the remaining portion of the stomach to the duodenum became known as the Billroth I method. During this year he also devised the Billroth II operation.

Heineke performed the first plastic operation on the pylorus in 1886. Finney reported his pyloroplasty in 1902. Dr. Schlatter, a Swiss surgeon, performed the first successful total gastrectomy in 1897.

The significance of duodenal ulcer was overlooked, however, until the decade of 1900 to 1910 when its importance and frequencies were emphasized by Drs. Moynihan and W. J. Mayo.

In order to give an impartial survey and to arrive at some definite conclusions, I think it is advisable to review briefly this subject from the etiological, physiological and anatomical viewpoints.

In a total of 100,000 autopsies performed by Brinton, Fenwick, Von Jaksch, Leube, and Welch, peptic ulcer was found in between four and one-half and five per cent. Dr. Arthur Bevan said, "Peptic ulcer occurs in at least 10 to 12 per cent of the population." Lehmann examined the stomach and duodenum in 1000 consecutive cases at autopsy for signs of active or healed ulcers. Ulcers or the scars of ulcers were found in 202 cases.

Etiology: The theories which have been advanced regarding the initial cause of peptic ulcer may be classified according to whether or not the initial lesion is regarded as:

Inflammatory: This is one of the earliest theories advanced because various degrees of gastritis are found always in conjunction with chronic ulcers.

Neurogenic: A disturbance of the nerve supply may account for hypersecretion of gastric juice, hypermotility, blood vessel spasm and "trophic states." In extensive studies of the nerves adjacent to ulcers of the lesser curvative, Permans and Nicolaysen found a definite and marked neuritis and perineuritis.

Dr. Harvey Cushing, in 1932, reported three deaths from acute perforated lesions of the gastrointestinal tract after operation for cerebellar tumors. These patients had not previously complained of any gastrointestinal symptoms. Cushing believes that these ulcers or perforations were produced by irritative disturbances either of fiber tracts or vagal centers in the brain stem. This strongly suggests the presence of a parasympathetic center in the diencephalon.

Those favorably disposed toward the neurogenic conception of ulcer have, in the process of time, gradually shifted the burden of responsibility from the peripheral vagus to its center in the medulla, to the midbrain, and now to the interbrain, newly recognized as a highly important, long overlooked station for vegetative impulses easily affected by psychic influences.

Circulatory: As a cause of simple ulcer, local circulatory disturbances with arrest, or impairment of the circulation in a certain part of the stomach wall, have been supported by the work of experimenters. Conditions which affect the circulation of the stomach include embolism, thrombosis, endarteritis obliterans, amyloid degeneration and varicose dilatations. Ulcers have been produced, experimentally, by injecting substances acting as emboli into the gastric arteries.

Bacterial: Böttcher early advocated the theory that ulcers were of infectious origin. The rôle of bacteria has been considered twofold, embolic and toxic. A most significant and interesting work has been that of Rosenow, of the Mayo Clinic, who has shown the selective affinity of streptococci. Rosenow's summary was as follows: The ulcers produced in animals, by the injection of streptococci, resemble those of man in location, gross and microscopic appearance, and

in that they tend to become chronic, perforate or cause a severe or fatal hemorrhage.

Digestive or Corrosive: It is now generally thought that the gastric juice has little or no part in the initiation of ulceration, but that its digestive action, after injury to the mucosa, is an important contribution toward the chronicity of the ulcer. The peculiarity of stomach ulcers is probably due, not to any specific cause, but to the digestive action of the gastric juice which keeps clean the base and sides of the ulcer.

Aschoff has conveniently classified erosions of the stomach into two groups. The first form occurs chiefly along the greater curvature in the pars media, and pars cardiaca. The erosions are extremely small and numerous, and are characterized by a tendency to heal. Gastric erosions of the second type are considerably larger and occur in smaller number along the "magenstrasse" or "stomach street." They are deeper and heal more slowly.

Mechanical: Finally, there is a small group of workers who feel that the erosions are the results of pure mechanical trauma. Irrespective of how divergent these theories are, it must be stated that they have one common factor, namely: that the actual destruction of the gastric mucosa is the result of digestion by gastric ferments.

Physiology and Anatomy: Two phases of gastric secretion are commonly recognized, primary or psychic which is dependent upon stimuli arising from the thought and the sight of food, mastication and deglutition. The second phase is chemical and depends upon the contact of food with the pyloric mucous membrane.

The Holznecht classification, as regards the motor and secretory divisions of the stomach, is perhaps the best known. Holznecht divides the stomach into pars pylorica, pars media, and pars cardiaca. The pars pylorica is the motor portion of the stomach and the pars media and cardiaca constitute the digestive part of the stomach. Histologically, the mucous membrane of the pars pylorica is characterized by its mucous glands, whereas, the acid and peptic cells are found in the pars media and cardiaca. The pyloric glands extend further upward on the lesser curvature than they do on the greater curvature. That portion of the lesser curvature which extends from the pars cardiaca to the pars pylorica constitutes the "magenstrasse" or "stomach street." Here the mucous membrane is stretched tightly over the underlying structures in contrast to the loose folds of mucous membrane which are found along the greater curvature and in the pars cardiaca.

The arterial supply of the stomach comes from the celiac trunk. It terminates by dividing into:

- Left gastric (coronary)
- Hepatic.
  - Right gastric
  - Gastroduodenal.
    - Right gastroepiploic
    - Superior pancreaticoduodenal.
- Splenic
  - Vasa brevia
  - Left gastroepiploic.

There is no doubt that the blood supply of the lesser curvature is less than that of the greater curvature, and that the least vascular area of the lesser curvature corresponds to the pars media where the terminal branches of the pyloric artery and gastric artery anastomose. The arterioles supplying the gastric mucosa are end arteries and their occlusion, therefore, results in a conical infarction of the mucous membrane.

Location of Gastric and Duodenal Ulcers: Fenwick's statistics show that in an analysis of 1015 cases of gastric ulcers, 76 per cent were situated in the pyloric region of the stomach near the lesser curvature and on its posterior surface.

Von Haberer and Strauss have noted, in their operations, that most ulcers occur in the pyloric region of the stomach and in the first portion of the duodenum.

Balfour says that 90 per cent of all gastric ulcers are on the lesser curvature, anterior or posterior wall.

Lehmann examined the stomach and duo-

denum in 1000 consecutive autopsies and not a single instance of a benign ulcer was observed on the greater curvature.

Moynihan, in his book "Duodenal Ulcers" states that in at least 95 per cent of his cases, the ulcer lies within one and one-half inches of the pylorus.

Von Haberer says that duodenal ulcers are distributed in circular phase around the first portion of the duodenum as a rule within two cms. of the pylorus. In 54 per cent of the cases, the ulcers were multiple. This was particularly true of the ulcers of the anterior wall which were associated with posterior wall ulcers in 78 per cent of the cases.

Location of Malignant Lesions: Haudek states that the prepyloric region is the most frequent site of cancer. Eighty per cent of carcinomas start there.

Sproull says that no lesion on the greater curvature should be treated by medical measures, for by so doing one would almost surely miss the opportunity to remove an early cancer.

Holmes and Hampton, in the study of 121 cases of carcinoma of the stomach, in the Massachusetts General Hospital, found 75 in the prepyloric region. The prepyloric region is that portion of the stomach which forms the pyloric antrum and which, as the peristaltic waves pass over the stomach, form a canal about one inch in length just to the gastric side of the pylorus. They believe that it is fair to state that any chronic, indurated, ulcerating lesion, occurring in the pyloric antrum within one inch of the pylorus, but without involving the pylorus, should be considered malignant until proved otherwise and that proof of the absence of malignancy is obtained only by serial section and careful microscopic examination. It is not safe to interpret such lesions as benign from röentgen examination alone or from observation on the operating table. The same is true of all chronic, indurated, ulcerated lesions occurring on the greater curvature and probably with most lesions occurring in the cardiac end of the stomach. The benign, chronic, indurated peptic ulcer occurs on the lesser curvature above the antrum or in the region of the pyloric valve. Ulcers of the first portion of the duodenum practically never become carcinomatous.

Now that benign and malignant lesions of the stomach and duodenum have been reviewed from the historical, etiological, physiological and anatomical phases, how shall we treat them surgically?

The surgical treatment of chronic gastric and duodenal ulcers may properly be classified under three heads:

1. Excision: Alone or combined with pyloroplasty or gastroenterostomy.
2. Gastroenterostomy: Alone or combined with excision.
3. Resection: Sleeve or wedge, partial gastrectomy or resection for exclusion.

The surgical treatment of cancer of the stomach may be classified under two heads:

1. Gastroenterostomy, jejunostomy or gastrostomy in inoperable cases with obstruction of the pylorus.
2. Resection: Partial gastrectomy, total gastrectomy or resection for exclusion.

Excision: Excision of a gastric or a duodenal ulcer alone is an operation which a surgeon infrequently has the opportunity to perform, due to the location, size and number of lesions. It is usually combined with operations such as a gastroenterostomy or pyloroplasty. Of all the surgical procedures for peptic ulcer, simple excision is the least effective. The removal of the relatively small ulcerated area does not affect the underlying conditions which brought about ulceration and a recurrence is almost inevitable.

The various pyloroplasties such as the Finney, Judd, Balfour, Horsley and Heineke-Mikulicz types, remove the anterior wall ulcer but do not affect the most important lesion which is the ulcer on the posterior wall. This operation does not remove all of the pathologic condition and again sends the physiologic processes of diges-

tion through the infiamed duodenum and keeps the inflammatory processes as well as the associated cholecystitis and pancreatitis active.

Gastroenterostomy: Balfour, in 1924, said that no other operation or treatment for lesions of the stomach and duodenum compares with gastroenterostomy in general usefulness. He reported 1000 cases on whom gastroenterostomy was done over a period of ten years (1914-1924). Eighty-eight per cent of these patients were relieved from their symptoms. Operative mortality was 1.11 per cent. In this series of 1000 cases there were 56 secondary operations.

In the Mayo Clinic from 1905 to 1924 there were performed 5,755 gastroenterostomies; 296 excisions alone, and 43 resections for chronic duodenal ulcers.

Balfour, at the meeting of the American College of Surgeons in Philadelphia, 1925, reported 219 cases of gastric and duodenal ulcers upon whom 180 gastroenterostomies and 39 partial gastrectomies were performed. There were four operative deaths. In this series there were 38 operations for recurrence of peptic and duodenal ulcers. In 1929, he said, "It is a well established fact that a gastric ulcer should be removed in any operation carried out for its cure, and it is equally well known that it is usually unnecessary to remove a duodenal ulcer."

Scudder, in 1922, reported 94 cases of duodenal ulcers upon whom gastroenterostomy was performed in the Massachusetts General Hospital. He said that 93.6 per cent were practically well.

Lincoln Davis, in 1924, said "Since the publication of Scudder's careful and painstaking report, seven patients have reentered the Massachusetts General Hospital with gastrojejunal ulcers who had had gastroenterostomy performed there during the period covered by Scudder's report.

Lewisohn, in 1925, made a survey of 92 patients upon whom gastroenterostomy had been performed for duodenal ulcers at the Mt. Sinai Hospital, New York City, between 1915 and 1923. Forty-seven per cent of the patients were cured, 19 per cent had slight complaints and 34 per cent suffered from gastrojejunal ulcers.

Finsterer has not performed a gastroenterostomy for gastric or duodenal ulcers in the last 10 years except in an aged patient, or where the referring physician objected to a partial gastrectomy. In his last 619 cases, he has performed gastroenterostomy only 13 times for duodenal ulcers, or a percentage of 2.1.

Partial Gastrectomy: Partial or subtotal gastrectomy removes the ulcer, the ulcer bearing area, and the pylorus en masse, and has given excellent results. The wedge or sleeve operation has been practically discarded due to contractions and the possible formation of an hour-glass stomach. Among the European surgeons, especially in Germany, Austria, and Hungary, gastroenterostomy, as the method of choice, has been gradually replaced by partial gastrectomy.

Resection for exclusion has been practiced by Finsterer for 14 years. The antrum is severed two finger breadths above the pylorus, two-thirds of the proximal part of stomach is resected. This operation is used when the ulcer penetrates the pancreas, and extends outward as far as the ampulla of Vater and it is impossible to isolate the common bile duct from callus infiltration of the ulcer. The ulcer is left in situ.

Total Gastrectomy: Observations at the Mayo Clinic, following operation, have not revealed any appreciable change in the number of erythrocytes in the concentration of hemoglobin, in the carbon dioxide combining power, or in the concentration of blood chlorides or urea.

Alfred A. Strauss, in 1930, reported 221 subtotal gastrectomies for duodenal ulcers. He says that all pathologic tissue should be removed; this includes the first portion of the duodenum and the lower half of the stomach, that the stomach must have a rapid or quicker than normal emptying time. In these 221 cases, 56 had had previous opera-

tions performed. Ninety-five per cent are free from symptoms and are on no particular diet or medication. Postoperative mortality was 5.4 per cent.

Moynihan, in the last edition of his book, "Abdominal Operations," advocates wholeheartedly, partial gastrectomy for gastric ulcers. He said that his mortality over a period of 10 years was 1.6 per cent during which time he operated upon 695 cases of duodenal and gastric ulcers.

E. C. Emerson, in 1933, reported the end-results in 2400 cases of partial gastrectomy performed in the First Surgical Clinic of Budapest, 1500 resections for removal of ulcers, and 900 resections for malignancy. Mortality, including all cases, was 4.8 per cent. The sum total of all the resections performed has shown good results in 81.4 per cent or 1954 cases, fair results in 16 per cent or 398 cases and bad results in two per cent or 48 cases.

Von Haberer, University of Cologne, has been doing partial gastrectomy for both gastric and duodenal ulcers since 1915. In 1920 he proved that if duodenal ulcers are treated by the same procedure as gastric ulcers, namely; by a partial gastrectomy, the same excellent results are obtained. In 1927, Von Haberer reported 1200 cases. The follow-up results showing that 96 per cent of the patients were completely symptom free or improved. In this series he has never observed the development of a gastrojejunal ulcer. Gastrojejunal ulcer is, without doubt, the most serious and distressing sequela of gastroenterostomy. Since 1919, Von Haberer has used his modification of the Billroth I in 1300 of the last 2000 resections. There was a four to five per cent postoperative mortality.

The Billroth I type of resection is the best method for restoring gastrointestinal continuity both from an anatomical and a physiological standpoint. Gastric acidity is reduced and the contents of the stomach empty into the second portion of the duodenum, an area where ulceration never occurs.

Finsterer, of Vienna, in 1931, reported 566 partial gastrectomies for duodenal ulcer. The mortality was 3.1 per cent. In the Hofmeister-Finsterer operation, it was 2.3 per cent and in resection for exclusion, leaving the pylorus in situ, 2.1 per cent. In 1933, he reported 1685 resections of the stomach for benign, nonpenetrating ulcers. The mortality, during the last 10 years has been 1.7 per cent. He attributes his low mortality to the avoidance of ether narcosis and careful after treatment.

Most of the leading gastrointestinal surgeons are agreed that gastroenterostomy, being a mechanical and not a physiologic operation, does not prevent the appearance of a new ulcer, not even hemorrhages or perforations of the old ulcers, and may be followed by a later complication such as peptic ulcer, secondary stenosis, and retrograde invagination of the intestine. Perforation of the ulcer occurs in three per cent of the cases, phlegmonous gastritis in five to 15 per cent and malignant degeneration in 25 to 30 per cent. Gastroenterostomy is an emergency operation in definite stenosis, in debilitated patients with acidosis in whom resection may be made later, in aged patients, in patients with cardiorenal diseases, and in obese patients. In the absence of pyloric obstruction, gastroenterostomy is of little physiological value. Many experiments have shown that if the pylorus is patent, nearly all of the stomach contents leave by that route. It has been said, that in these cases, the gastric ulcer may heal, not because of the gastroenterostomy, but in spite of it.

Carcinoma of the Stomach: In 1932 there were 128,181 deaths from cancer in the United States. Twenty-five thousand, eight hundred and two of these, or approximately one-fifth were due to cancer of the stomach.

The most common symptom in cancer of the stomach is pain which varies from a mild epigastric distress to acute severe pain. The next most common symptoms, in order of frequency, are loss of weight, vomiting,

weakness, loss of appetite, fullness, indigestion and diarrhea.

The laboratory findings reveal occult blood in the stools in approximately 95 per cent of cases, and in the stomach in a high percentage of cases, also an anemia, achlorhydria or hypochlorhydria.

The importance of x-ray examination can not be over emphasized. It usually reveals a distorted contour of the stomach. Accuracy of diagnosis is nearly 100 per cent except in the occasional ulcer carcinoma.

The experienced internist, upon the least suspicion, will make repeated fluoroscopic examinations. He knows that a patient who is apparently in good health, but with an unexplained dyspepsia, may have cancer. In a case of this type every physician should ask himself the vital question: Can this possibly be cancer?

Balfour, in 1932, presented an analysis of 128 patients for whom partial gastrectomy, for cancer of the stomach, was done in the Mayo Clinic between 1910 and 1920 and who lived 10 years or more following operation. The most striking fact in the history was that in 109 of the 128 cases, dyspepsia has existed for a year or more. In 16 per cent there had been gross bleeding. In 114 there had been some loss of weight.

Type of Lesion Favorable for Resection: Cancer of the body of the stomach, if well demarcated, is the most curable of any because it is accessible and the regional lymph structures can be completely removed. The large freely movable cancer is usually of the colloid type, the lesion is sharply demarcated and the walls of the uninvolved portion of the stomach are flexible and therefore suitable for extensive resection and safe anastomosis. It is a common impression that the large gastric tumor is irremovable and that for this reason, operation is not advised.

Lesions of the antrum and those which extend to the pylorus are not the most favorable for removal and cure because the lymph nodes in this region are extensive and become involved early.

A lesion in the fundus is the most unfavorable because early symptoms are few and the lesion is relatively inaccessible. When a high-lying cancer involves the greater curvature and when the growth is palpable and movable, exploration should always be advised.

Surgical Treatment: Surgical treatment has two purposes in view, cure and palliation. In all cases of cancer of the stomach, exploration should be carried out unless recognizable, irremovable metastatic growths, e. g., rectal, umbilical or supraclavicular implants can be demonstrated. There are two facts of great importance regarding enlarged lymph nodes in cancer of the stomach:

1. Enlargement does not necessarily mean involvement by cancer.

2. A patient may be cured even if all involved lymph nodes are not removed. The remaining nodes, in such cases, act as a barrier to further dissemination of the disease.

The presence of a small tumor in the liver existing with a carcinoma of the stomach should not be considered a metastatic nodule unless proved so by microscopic examination. Metastasis of the liver should not prevent palliative removal of an ulcerated infected gastric lesion if by such an operation the remainder of the patient's life may be made more comfortable. Death, due to metastasis of the liver, is usually painless. Metastatic lesions do not break down or become infected. Cases have lived in comfort for five years who had irremovable, metastatic growths.

CONCLUSIONS

1. Gastroenterostomy with excision is an acceptable procedure in the treatment of duodenal ulcer, providing the ulcer is single and accessible. It is not an acceptable procedure for the treatment of gastric ulcer in the leading clinics of the United States and Europe.

2. Partial gastrectomy undoubtedly offers the best chance for a permanent cure. The percentage of cures, following resection of the stomach, is so vastly superior to the percentage following gastroenterostomy, that

this method is recommended for the treatment of gastroduodenal ulcers.

3. In cancer of the stomach, many physicians still feel that the patient is hopelessly doomed from the start, and that operative interference carries a high mortality with little or no relief.

4. The brilliant results are carefully hidden while the fatal cases are thoroughly discussed.

5. The direct results achieved by the operation for cancer of the stomach, as well as the permanent results, are still far from the ideal. They are, however, not so discouraging that every operation must be advised against as a hopeless beginning. The results are still capable of improvement, but for this, the encouragement of the practitioner, as family physician, is necessary. He can do a great deal to combat successfully, through objective explanations, the fear of operation, and so bring the patient quickly to his only means of salvation.

This accomplishment of the practitioner can contribute just as much to the improvement of operative results as an exact and careful surgical technique.

For the combating of cancer in general, as also for the improvement of the results in cases of cancer of the stomach, a closer coöperation between the patient and practitioner, between internist and surgeon, is the basic condition of all further progress.

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WHAT OF OUR CODE?*

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IN order properly to study the subject of greed and selfishness, one must turn back the pages of history to the story of Cain and Abel, as recorded in the fourth chapter of Genesis. That Cain slew his younger brother in a fit of rage is apparently all that most people remember, and few there are who see any bearing of that ancient event on modern times. Cain possessed a morose, malicious, and revengeful temper. He wanted to succeed, and according to the custom of his time, success was possible through the favor of the Lord, gained only by making sacrifices. His offerings, made in a sullen and defiant spirit, were naturally not acceptable to the Lord, while the sacrifices of Abel, made in a spirit of humility and gratitude, were acceptable. Rage and jealousy instantly arose in Cain's mind. Instead of blaming himself, he sought to remove the object of his hatred by murder. When the Lord asked him about Abel he answered, "Am I my brother's keeper?" He declined to take any responsibility for his brother. He desired to live his life according to his own ideals and pleasures irrespective of the welfare of others.

That attitude of the social and business world in the past is the attitude of today. That spirit of disregard of our fellow men has been responsible for most of the ills and misfortunes that have befallen mankind.

Hospitals formerly were institutions built for humane purposes, located in the larger centers of population and supported by benevolences and the state. Most of the work done in the earlier days was of a surgical nature. The men doing the surgery were reverenced and beloved by all. Some of the pioneer surgeons were so respected that, in many states, monuments have been erected to them. From this humble beginning, we have witnessed such an epochal growth of hospitals during the past three decades that now one scarcely finds a village of any size that is not supporting one or more hospitals. A reasonable growth and spread of hospital facilities were necessary due to rapid industrial development. Later, jealousy and hatred developed among those desiring to do the surgery in that hospital. Instead of resorting to the crude methods employed by Cain, the defiant and morose one would withdraw and establish a hospital of his own, known as a private hospital. Again another Cain would appear and there would arise other private hospitals. Thus, a small community, barely able to support one general hospital that amply supplied its needs, was called upon to support several. This condition necessarily caused sharp rivalry to develop between the hospitals. The modern Cain did not go forth with a bludgeon and slay his rival. Instead, a hospital was built by the defiant and morose individual,

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never considering the humane side but satisfying his own ambitions. Selfishness and total disregard of the welfare of others engaged in similar occupations formed the corner stones of many such hospitals, the making of profits being too often the dominating desire. Many did prosper under such conditions, but as time moved on, more and more excellent general practitioners, noting the rich harvest of the more fortunate surgeons in nearby centers, felt an urge to do something noble for their communities. Therefore, in another little hamlet would spring up a hospital. The general practitioner was no longer interested in medical problems, such as the nervousness of Mrs. A, whose ailment was known to be marital, but suddenly she was found to have retroversion of the uterus, chronic appendicitis and floating kidney. An operation was urged, and thus a community lost an excellent physician and gained a mediocre surgeon.

Very little consideration seems to have been given, by those urging the necessity of more hospitals, to the fact that during this same period the means and facilities for transportation have moved faster than ever before. Towns that were formerly an all night or day journey by train from the nearest hospital, were composed of people very well contented with this condition, but finding they could reach the same hospital now in a short ride over a beautiful highway, they suddenly began to feel the need of a local hospital. It often took a great deal of missionary work on the part of the aspiring surgeon to create this feeling among the citizenship.

The uncontrolled growth of hospitals necessitated a falling off in the number of patients who were being treated in the hospitals already existing. Some met the changed conditions with fortitude and adjusted matters accordingly. How very different were others, who, displaying all the venom, jealousy and selfishness of Cain, proceeded to develop their own plans, forgetful of the welfare of others! They did not commit actual murder, but by their tactics they attempted to kill the high ideals and the humane side of hospital life. Various hospital schemes have developed throughout the country, with selfishness as the basis of many of them.

In our state, West Virginia, there exists a condition offering many abuses. I refer to the contract or list hospital work. Under this scheme, coal operators and other employers of labor contract with one hospital to handle all of their employees needing hospitalization. Each employee has a certain amount deducted each month from his wages to be turned over to the designated hospital. This plan would probably have solved the hospital care of thousands of miners and their families in a very satisfactory way had not so much rivalry and jealousy developed. This scheme does not, in most instances, permit the employee to have a voice in the selection of the hospital to be used, although he is paying the bill. Many hospitals have been built in the area mentioned for no other reason than to bid for this type of work. Some of the hospitals doing this work are well equipped and render excellent service. Others, however, are poorly equipped and have very inadequate staffs. Certain coal operators sell their employees to the one making the cheapest bid, regardless of service.

By far the worst abuse that has arisen in this work is the compensation angle. During the past, the rivalry has become so marked that some of the hospitals doing this work agreed with the operators to handle all injured employees on the same basis as any other illness, provided the amount collected each month over the payroll be increased a sufficient amount to cover this extra work. Many operators, in order to escape paying in to the compensation fund an amount to care for their injured employees, did the unheard of thing of forcing the employee to pay for hospital and surgical service for any injury received. These same operators have had an amendment added to the state com-

pensation laws exempting any injured employee from receiving medical, surgical or hospital benefits from the compensation fund as long as he contributes to a contract hospital fund. The employee was then forced to contribute to the list hospital fund or be discharged. The injured employee can not go to another hospital or physician, even though he is not receiving competent treatment at the list hospital, unless he personally pays his entire bill. If he paid it to another hospital he would be fortunate indeed to have a job when able to return to work. The very basic principles of our compensation laws are nullified by such contracts.

The West Virginia State Medical Association has tried repeatedly to have this condition corrected in various sessions of the legislatures. The powerful lobbies maintained at our Capitol have prevented any action. Our state hospital association, so far, has not offered any assistance or coöperation in these fights; neither has it made any effort to help correct such abuses during its various deliberations. On the contrary, most of those hospitals participating in the abuses mentioned, are honored and privileged members of our association.

Those of you who do not live and practice in our great state, may feel that this is purely a local problem and is out of place in this meeting. Please be assured that our shortcomings are presented to you in great humility and embarrassment. Virginia, to the south and east of us, always felt that such matters did not concern her. The plan outlined to you has now crossed her border and is in operation in some of her coal fields. Those of you living to the west of us may expect to see your borders crossed also if some steps are not taken to check this unfair practice.

We, who live in or near industrial areas, must recognize their ever changing economic conditions. Hospitals should no longer be expected to carry the burden of the unemployed sick, nor those whose wages are such that they can not pay for ordinary carrying charges. The past few years should have convinced us of the need of a more even distribution of the cost of illness among small wage earners. The question confronting the medical profession today is of grave importance. It is for us to decide if we will control our destiny or leave it to some other agency. Dr. Oliver J. Foy in the February 10th issue of the A. M. A. Journal, warns that the past few months have seen the development of federal control not only to an unprecedented extent, but to an undreamed or extent. That control has extended into many fields that were considered exempt from government interference. Business, production and agriculture have all been brought under the yoke. Wise men, who have devoted their lives to the study of political economy, admit that they can not foresee the far-reaching effects of these new policies or predict how far they may extend. We, then, should recognize our inability to pass judgment on the ultimate outcome. I am mentioning this for the definite reason of calling your attention to the fact that the medical profession has, thus far, not only escaped hampering federal restrictions, but has in a sense received federal endorsement or a vote of confidence as it were from the government.

The Federal Civil Works Administration has attempted to leave the medical care of this vast army in the hands of private physicians. This does not include osteopaths, chiropractors or other irregulars. The recognition of scientific medicine by the government is most gratifying and it is a more liberal view than that taken by many of the states. It is significant, though, if not portraying the trend of thought that in the CWA work fixed fees are provided for hospitalization, laboratory, and x-ray work, while it does not provide a fixed fee for medical service. It is as though the government recognized that the medical profession, in its Hippocratic code, already possessed all needed regulations and that such a code nec-

essarily transcends any lesser regulations such as might be provided by the NRA CWA or the PWA. There is, however, nothing permanent or unchangeable about the present regulations. We still face a real danger. If, in the future, the government should find that certain physicians or hospitals are failing to abide by the code of fair play and learns that one or more physicians or hospitals are using a ruthless system of unfair bargaining to gain work, it can provide new regulations to take over the entire medical work of the various projects now in operation by salaried government physicians, and so take the first steps toward state medicine.

Individualism and selfishness were the reasons for government interference and a demand for equal rights for all engaged in business. At first, this was vigorously opposed by the industrial leaders, but today we find those same men asking for more and continued supervision. Under a system of fair play and honesty, much to their surprise, they are making money.

We say that we, as a profession, are vigorously opposed to any form of state medicine. Would our opposition be greater or more effective than the opposition of industry? As a member of the public health council of our state for the past four years, I have had an excellent opportunity to observe the trend of thought among the medical profession. It has been a revelation to see the great number of physicians, some of whom were thought to be highly successful in their fields, now in a mad scramble seeking any kind of medical position offered by the state. Personal contact with many of those physicians usually brings the same explanation for desiring a change—the private practice of medicine is no longer attractive or remunerative. They are willing to take any kind of position in order to escape the killing pace of present day competition. The alarming fact is that this feeling on the part of physicians is gaining momentum. If it continues, we will soon find ourselves opposing state medicine not so much from outside agencies as within our own organizations.

Frankly speaking, why should those who have attempted to practice according to the code of ethics outlined for physicians and hospitals, oppose state medicine? They should expect the government to demand that physicians and hospitals treat each and all with the same fairness and consideration that is being exacted by those engaged in the various commercial fields. Every physician and hospital has a right to demand fairness. A square deal or a chance to obtain business based on service rendered or skill shown, rather than by commercial bartering which ignores the rights of others engaged in similar occupations, is all that is asked for. Can we expect solace or relief from organizations like this or from our national ones? When did one ever hear of a state or national hospital association expelling a member for unfair or unethical practice? Any hospital can remain a member in good standing in any association as long as it pays the dues. Labor unions demand of their members fair and honest dealings with each other or they suffer the indignity of being expelled. Are we willing, in the future to find the code of ethics of great scientific bodies like ours rated below that of trade and labor groups?

The medical and hospital associations for years have trained the public to become hospital minded. During the past few years the patients have shown a proper mental aspect toward hospitals when ill but have been lacking in the material aspect. In recent years, in many parts of the country, groups of hospitals have attempted, with fair success, to furnish hospitalization to large groups of small wage earners at a fixed amount per month or year. Some commercial agencies, scenting a rich field for profit, have invaded this field and have been fairly successful. The American Hospital Association has rightly condemned such agencies and has outlined a plan that is eminently fair when operated by the hospitals affected. It should be obvious that any plan offering

this service must be offered by the hospitals and not by private individuals or corporations. All hospitals in the area covered by this form of service must be given an equal opportunity. The American Medical Association has, through its economist, Dr. R. G. Leland, attempted to show that these plans, even when offered by the hospitals, are interpreted by many states as insurance contracts. Fortunately, the insurance commissioners of Ohio, Kentucky and West Virginia do not feel that way. We, therefore, would not be hampered by our respective states if some plan was to be sponsored by this group that attempted to keep this type of work out of the hands of groups of profiteers and under the control of the hospitals. This is a great opportunity that confronts such organizations, and should not be delayed if hospital associations are to maintain their rightful control of the future of the various hospitals.

Any plan, to be successful, must at all times respect and protect the rights of the private physician and should extend that same protection to all hospitals in the area served. The patient should, at all times, have the right of free choice of physician and hospital.

In conclusion, I will present briefly a plan that is now functioning satisfactorily in Mercer and McDowell counties of West Virginia. Most of the plans brought out so far protect the wage earner only, leaving his family without protection. Under our plan, he and his whole family are protected. The wage earner or principal pays seventy-five cents per month; fifty cents a month for each adult dependent, and a sliding scaling for children. This plan has been in operation for about one year. It entitles the principal and dependents to a private or two-bed room, board and general floor nursing, anesthetic and use of operating room, and any x-ray or laboratory work free. It does not provide for any professional fees. During the first eight months of its existence, all hospitals were paid 80 per cent of the total charges made. Data on the past few months is not available now, but will be published in full at a later date. The subscribers to this fund are well pleased. The hospitals and the private physicians are satisfied and coöperative. Any reputable physician not associated with a hospital may order any x-ray or laboratory work done on a subscriber to this fund without consulting any hospital member.

Our plan, though not ideal, does meet with every condition prescribed by the American Hospital Association. Pamphlets, outlining in detail our plan of operation, will be handed you. We will welcome any suggestions you care to make and, in turn, we hope our plan may be of assistance to you if a similar idea is tried in your neighborhood.

In closing, may I again emphasize that we must be ever alert. We must impress upon our members that the day of independence, selfishness and isolation is gone. In its place has arisen another age or epoch in history. In this new era men will be able to see and understand that they can not live alone but are ever dependent upon others. Selfishness and malice will be replaced by coöperation and loyalty to our fellow men. More and more we will recognize that our success is dependent upon the success of others. Then only can a man face the world and exclaim, "I *am* my brother's keeper!"

ADVERTISING DENTAL DENS

"The dental quack seems to have drifted into advertising his wares for several reasons," Robert H. Brotman, D.D.S., points out in the first of his series of articles on "Dental Dens," beginning in the September *Hygeia*. "The greatest asset to a dental practitioner is a satisfied patient, for that patient will sing the doctor's praises and will recommend him to others. Time and perseverance establish a practice for the competent dentist, but because the dental quack does not render sufficiently satisfactory service, it becomes imperative for him to use advertising mediums to obtain new customers."

SOME MEDICAL ASPECTS OF THYROID DISEASE*

By R. A. RAMSEY, A. B., M. D.
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YOUR secretary has asked me to consider some medical phases of thyroid disease of special interest to the general practitioner. I shall, therefore, try to take up only some practical points which we have found of value in the personal examination of over 20,000 thyroid patients. This discussion cannot be complete, but it is hoped that some of the details will be useful in general practice.

In the examination of the thyroid gland it is important to have a definite system by which one may determine size, position, consistency, mobility, surface markings and relation to other structures, such as trachea, carotid vessels, clavicle and sternum. This may be carried out as follows: *First*, face the patient with him preferably in sitting or standing position; *second*, for examination of the left lobe, turn his head to the left, by which procedure the sternocleido-mastoid muscle is relaxed; now tilt the head slightly downward to relax the prethyroid muscles; *third*, with the left thumb hooked, go between the thyroid gland and sternomastoid muscle sweeping upward to the upper pole and down to the lower pole, having the patient swallow at the same time; *fourth*, repeat the same procedure on the right side with the right thumb; *fifth*, it may be necessary in case of some goiters to use the other hand in pressing the gland forward from the posterior portion of the neck during the thumb examination; *sixth*, now insert the thumb in the suprasternal notch and have the patient swallow. This procedure will bring up some substernal nodules; *seventh*, percussion and auscultation over the upper sternum may now be done. Substernal goiters sometimes show definite dullness and again distinct bronchial breathing may be heard, provided the substernal mass is non-cystic. There should be noted the existence of any dilated veins indicative of collateral circulation.

Treatment of Nontoxic Goiter in Children and Young Adults: Treatment in this condition will depend considerably upon the type of goiter. In general, however, one should carry out the following: 1. Remove all infection as far as possible, especially infected teeth and tonsils. 2. Improve the hygienic conditions. 3. Proper balanced diet. 4. Treat anemia. The rest of the treatment depends upon the type of goiter. Using the method of examination just described the first type is found to be small, diffuse, the surface slightly granular and involving the entire gland. In the early cases perhaps only the isthmus will be involved. This type we shall call simple parenchymatous goiter and it is the most amenable to medical treatment. Most of these cases are lacking in thyroid secretion, hence, besides iodine in small doses, thyroid extract should be given. If an apparatus for taking metabolism rate is not available, one must depend upon the clinical examination for symptoms and signs of thyroid insufficiency which will be considered later. The dosage would be regulated according to the intensity of the findings or the metabolism rate. It is important to appreciate that small doses are desirable, increasing as the cases progress rather than to start with large doses and later decrease.

Second is the diffuse colloid goiter. This is usually larger and somewhat softer with often a tendency to be asymmetrical. The granular surface marking of the parenchymatous type begins to approach the nodular

*From the Medical Division of the Crotti Clinic. Read by invitation before the Central Tri-State Medical Society, Huntington, W. Va., January 18, 1934.

type. In this kind one may reduce the size, using the same measures as indicated above, but it probably will not be entirely eliminated. Not all of these cases, of course, are hypothyroid and so must be treated accordingly.

Third is the nodular goiter. If you have examined a thyroid gland carefully in this type you have noted the surface is "knotty" or "lumpy" in one or both lobes. The nodules may be distinctly discrete or encapsulated, meaning colloid or lymphoid inclusions, fetal adenomata or cysts. Here medicine cannot hope to effect a cure. The patient may be hypothyroid and treatment may cause the gland to go down about the nodules, but the nodules themselves remain. The process which is usually a degenerative one may destroy a good gland, hence, in spite of the nontoxic character, surgery is advised. Such a gland may later become toxic or malignant.

In the case of diffuse nodular goiter, the areas are noted to lack the sharp limits which mark the discrete type of nodule. Here the use of thyroid extract and iodine or iodine alone may produce ultimate reduction in the size of the gland if not complete return to normal.

Some Diagnostic Criteria in Toxic Goiter: In this part of the discussion we shall not consider the text book picture of hyperthyroidism or thyrotoxicosis, but rather some few important diagnostic points which may be of value. These will be considered under four headings: 1. Symptoms. 2. Physical examination. 3. Laboratory. 4. X-ray.

Symptoms: If we are considering the so-called secondary toxic type of goiter, sometimes called thyrotoxic adenoma, thyrotoxicosis must be suspected if there is a history of previous swelling in the neck and symptoms developing gradually or suddenly with a combination of some of the following: Nervousness, palpitation, fast heart, generalized sweating, loss of weight, trembling, irritability and scanty menstruation. Thyrotoxicosis is apt to occur especially in the following: Puberty, pregnancy, menopause, after infection or following shock. In the diffuse parenchymatous or primary type the same symptoms may come on insidiously or suddenly in the states above mentioned.

Physical Examination: The patient may have a slight rise in temperature, which with the symptoms previously mentioned, may cause confusion with tuberculosis. Eyes: The classical signs need not be reiterated here. An important point is that a faint staring look may be one of the earliest signs in toxic goiter. Neck: The thyroid gland is not always palpably enlarged. The enlargement may be granular and diffuse or nodular. The nodule may be substernal or entirely intrathoracic. Especially in the parenchymatous type, murmurs may be present over the thyroid arteries or the gland itself. This thyroid bruit is continuous during systole and diastole and is to be differentiated from the carotid murmur which lasts during systole only and from the murmur over the external jugular vein as in anemia, which, while it is continuous during the entire cardiac cycle, may be suppressed by pressure over the vein just above the clavicle.

Heart: The precordial activity may be noticed markedly or moderately. Palpation reveals the apex beat forceful and there is sometimes a systolic thrill. Systolic impulse at the second right and left interspaces may at times be present. On percussion one may find the right border of cardiac dullness outside the right sternal margin and the left border of cardiac dullness beyond the normal position. I appreciate the fact that clinicians are not all agreed upon the precision of percussion. In our experience, the ausculatory method of percussion gives fairly accurate results. Medical men are quite at variance regarding cardiac enlargement in thyrotoxicosis, but in our experience in a very large percentage of cases, the toxicity of which has been of moderate duration as to time, will show the left border of cardiac dullness beyond normal. One must remember that many cases of toxic goiter have a long chest and that in this type the normal

left border of cardiac dullness is found to be two or three centimeters inside the midclavicular line in the sixth interspace, so that if the left border of cardiac dullness is found in the midclavicular line, the heart may be considered enlarged. In our experience six foot x-ray pictures have shown almost consistently moderate enlargement at all ages.

Auscultation: Systolic murmurs may be heard over the entire heart, but especially over the pulmonary area. The pulmonary second is almost constantly accentuated. An irregular heart may well occur in this condition, associated with auricular flutter, auricular fibrillation or heart block. In case of auricular fibrillation in which one can rule out chronic rheumatic heart disease and evident arteriosclerosis, the patient should be carefully searched for evidence of thyroid enlargement, remembering that nodules behind the sternum may exist. The pulse in a typical case is usually of celer or Corrigan type, often showing capillary systolic flushing or capillary pulse in the nails. Coincident with this finding, there is usually a high pulse pressure, the systolic being normal or slightly elevated while the diastolic is relatively low.

Skin: This may show dermographia and blotchy redness or distinct bronzing, stimulating Addison's disease. The skin in thyrotoxicosis in fairly well established cases is moist all over, while in the condition known as neurocirculatory asthenia or sympathetico-tonia, with which thyrotoxicosis is often confused, moisture occurs usually alone in the palms of the hands, soles of the feet and axillæ. Patellar reflexes are often sluggish and may be absent. Tremor is usually of the fine type and may or may not be present.

Laboratory: Basal metabolism rate is a valuable aid in thyroid disease, but it is not indispensable and certainly should not be the sole guide to diagnosis and treatment. As we sometimes put it, "one should not allow a machine to think for him." While it is true that the basal metabolism rate is ordinarily elevated in toxic goiter, we have seen a number of cases well established with normal or lower than the usual normal. I believe our lowest was minus 20. Conversely, there may be cases of nontoxic goiter who have a moderate increase of basal metabolism rate. I realize that these are distinct exceptions to the rule, but mention them so that you may be especially cognizant of the physical findings and symptoms. Great care must be taken in making metabolism rates, since the procedure is open to the same objections as are all mechanical devices.

The blood count is rather interesting in thyrotoxicosis and usually manifests itself with leucopenia, and an increase in the relative number of lymphocytes.

An x-ray should be taken of the chest for a suspected intrathoracic goiter. It is wise to place the patient under the fluoroscope and have him swallow, noting if the mass rises during this act. Goiter usually moves upward. In this way you will rule out other mediastinal tumors, such as aneurysm, sarcoma, etc. Aneurysm, of course, shows distinct expansile pulsation while in the case of intrathoracic goiter, if there is a pulsation, it is a transmitted one.

Intermittent thyrotoxicosis should not be neglected. There are certain cases when first seen give a history of toxic symptoms, but show none at the time of the examination and their metabolism rate may be normal or lower than normal. These patients should be seen at intervals or a test be made to bring out toxic symptoms with the use of thyroid extract.

Treatment of Toxic Goiter: Medical treatment: This treatment applies solely to that type of goiter which we call parenchymatous, in other words, the smooth or granular symmetrical type. Medical treatment may be divided into several parts.

First: Removal of infection.

Second: Rest in bed, 16 to 20 hours daily. Remove as much of the source of mental worry and annoyance as possible.

Third: Cooler climate when convenient

or at least measures to cool the atmosphere in the room.

Fourth: Diet. This should be high in calories and not too high in acid producing products, since toxic goiters have a tendency to produce acidosis. In the case of severely toxic goiter patients having vomiting and diarrhea, intravenous and subcutaneous feedings may be necessary. If diarrhea does not exist and vomiting does, then rectal feeding. Dextrose may be used subcutaneously or intravenously and insulin supplied.

Fifth: Medicine. It is not within the scope of this paper to give in detail the use of various kinds of medication. Almost 100 different drugs have been used during the many years of medical treatment. We shall discuss a few of these.

The Forscheimer treatment, quinine hydrobromide and ergot is of distinct value in many of these cases. They tolerate a large dosage of quinine. Iodine. Generally employed in the form of Lugol's solution, but in our experience of medical treatment in general practice the dosage has been too large. Unless there is distinct acute thyrotoxicosis, five to ten drops daily may be sufficient to cause considerable benefit. Where the patient is vomiting and has distinct mental symptoms and other evidences of thyroid crises, medication may have to be given by rectum. Here a dosage of one-half dram in one-half ounce of water may be tolerated. For several years we have used sodium iodide intravenously, 15 to 30 grains. Just recently a new preparation, known as diasporal iodine has been used, apparently with good results. It is too early to comment in detail upon the findings. An important warning to be noted in the use of iodine, when operation is not considered, is that the doses should be small, except as indicated for the crises. There should be definite intervals of iodine omission. Clinicians are at variance as to the use of the drug digitalis. We feel that it is definitely indicated when there is a marked dilatation of the heart and especially if auricular fibrillation exists.

Organotherapy: Here again there is no unanimity of opinion on the values of these substances. Suprarenal cortex has given varying results as have corpus leutem, whole ovary and whole pituitary. Suprarenal cortex may be tried especially in those cases showing symptoms simulating Addison's disease, such as bronzing, low blood pressure, marked asthenia, etc. Ovarian preparations may be beneficial in certain cases, particularly the menopausal type.

Second, x-ray: Here again a cure may be brought about only in the parenchymatous type if the case is mild and treated early. Cure may be effected when combined with medical measures, but as a rule, x-ray is of only temporary benefit.

Third, Surgery: Surgery is indicated first in all cases which have not responded to medical treatment or x-ray in a reasonable length of time and who steadily lose weight and continue with nervousness and palpitation, etc. Second: In all nodular, malignant and cystic goiters.

Medical supervision should be carried out for a number of months following operation. It is a mistake to have a patient feel that surgery itself is a method for a complete cure.

Hypothyroidism: This discussion will be concerned with the mild forms of hypothyroidism, especially in adults. The condition manifests itself in many ways, so that its diagnosis may be easily overlooked. In so-called goiter areas, the majority of cases of thyroid insufficiencies will be found to have varying degrees of thyroid enlargement. While the etiological factors may be the same as those causing endemic goiter, foci of infection and generalized infection may play a prominent part. It is noteworthy that after an epidemic, for example, of influenza, an increase in the number of cases of hypothyroidism will be found. This will explain, in part, at least the prolonged lassitude of which many complain. We appreciate that other diseased conditions, especially those of other endocrine origin may accompany hypothyroidism, but proper treatment

for thyroid insufficiency will often cause marked improvement. A summary of symptoms is given but time will permit consideration of only a limited number.

A. Nervous System:

1. Depression
2. Fatigue
3. Nervousness
4. Headaches, A. M. and mostly occipital
5. Paresthesia
6. Vertigo
7. Sleepiness.

B. Circulatory:

1. Tachycardia, (in those simulating hyperthyroids)
2. Bradycardia
3. Blood pressure, low, normal, or occasionally high
4. Heart sounds subdued at the apex
5. Irregular heart
6. Precordial pain
7. Anemia
8. Subnormal temperature.

C. Skin:

1. Generally dry
2. Hair dry, some falling out. Nails brittle
3. Eczema
4. Adiposity
5. Slight swelling, especially upper lids, hands and ankles
6. Hands and feet may perspire freely in thin type, but are cold.

D. Gastrointestinal:

1. Flatulence
2. Constipation
3. Occasional nausea and vomiting
4. Pain (abdominal).

E. Genitourinary:

1. Sterility, impotence
2. Abortion
3. Metrorrhagia or menorrhagia
4. Amenorrhea.

F. Eye, Ear, Nose and Throat:

1. Eye muscle imbalance, diplopia
2. Congestion nasal mucous membrane
3. Decreased hearing
4. Dry throat and mouth.

Depression: This condition varies in intensity from simple "moody manner" to "predementia precox." It is notably present in adolescence and menopause.

Nervousness: While this symptom is more often associated with hyperthyroidism, it may occur in hypothyroidism, especially in the thin type in whom sympatheticotonia may predominate.

Headache: This is almost always occipital and occurs most commonly on awakening but usually disappears by noon. Very few other conditions have morning occipital headaches, for example, sinus disease, which is often accompanied by hypothyroidism.

Sleepiness: A fairly common symptom associated with fatigue. It may occur in a syndrome called hyperinsulinism or hypoglycemia from which it must be differentiated by special methods. Moderate hypoglycemia does occur in thyroid insufficiencies.

Tachycardia: Fast heart seems paradoxical in this state. There is a thin type of patient with ptotic make-up and symptoms of sympathetic stimulation who will have an intermittent tachycardia. Many such patients have as low as minus 25 to 30 metabolic rates, but are symptomatically nervous and trembly. Hypogonadism and low protein diet often accompany the thyroid state.

Precordial Pain: We have noted this symptom in quite a number of patients and while not offering any definite explanation for it, nevertheless, the annoying symptom has disappeared after the use of thyroid extract.

Abdominal Pain: Constipation is, of course, a frequent source of abdominal pain and occurs commonly in hypothyroidism. Even in those cases which are not constipated, abdominal pain may occur and simulate cholecystitis, peptic ulcer or chronic appendicitis.

Eye Muscle Imbalance: Many of these patients have general muscle fatigue and other symptoms of thyroid insufficiency when

closely questioned. Their chief complaint is often that an oculist has stated that he cannot make proper correction for the eyes until the general condition is rectified. Pain in the eye balls and double vision are usual symptoms.

Chronic Nasal Congestion: This implies no special pathology being present, such as polyp, sinus infection, etc. We believe that Mithoeffer of Cincinnati, was first to call attention to this symptom. Local treatments for the congestion seem to help very little, unless the constitutional treatment is given. There are, usually, of course, other symptoms of thyroid insufficiency manifested.

Treatment: First, Diet. Reduced number of calories in the obese, increased number for those underweight. This latter group, protein and fat especially should be increased.

Second, Rest: Moderate amount of rest in the overweight, since excessvie exercise often overburdens an already underactive thyroid. There is a greater need for rest, especially after meals in the thin type.

Third: Removal of foci of infection, especially in teeth, tonsils and sinuses.

Fourth: Thyroid extract. Large doses should be given in overweight patients, but small doses in thin type. In either case it is our experience that one should start with small doses and gradually increase. We have used thyroxin intravenously with success, but when given by mouth it has caused nausea and results have not been as favorable as when using thyroid extract. An important point is to choose a good standard thyroid extract, preferably enteric coated, and continue with this in the same patient so that proper comparison can be made. Small doses of iodine are indicated in some cases. More thyroid is usually required in cold weather. Several factors entering into the gradation of the thyroid extract doses are metabolic rate, temperature, heart rate, blood pressure, all of which should increase. The decreased dryness of the skin in general should also be an aid.

SUMMARY

First: A method is given for thyroid examination.

Second: Practical suggestions are made for differentiating, by simple clinical examination, various types of goiter.

Third: Surface character of the thyroid, whether smooth, or nodular, with or without symptoms must be first considered.

Fourth: Toxic goiter still demands the attention of every field of medicine—no one branch having a monopoly on methods of diagnosis and treatment. History and clinical examination are still uppermost in diagnosis. Medical treatment should not be continued too long to jeopardize the patient. Surgery must be followed by carefully supervised convalescence.

Fifth: Hypothyroidism of the mild type often fails of diagnosis. Its symptomatology is manifold and a table is appended to aid in better understanding of a most common condition, especially frequent in goiter communities.

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EXERCISE, STUDY AND SLEEP

The question of whether or not extremely active play or concentrated study by a child shortly before retiring affects the child's sleep need not trouble mothers and teachers any longer for it is answered with authority by Dr. Glenville Giddings in "Your Child's Sleep," an article in the September *Hygeia.*

The sleep patterns of a group of twelve children were recorded by an electric device on nights when they had participated in these activities and on normal nights.

PROGRESSIVE PSEUDOHYPERTROPHIC MUSCULAR DYSTROPHY*

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The object of this paper is to present a recent treatment for progressive pseudohypertrophic muscular dystrophy with a report and discussion of 108 cases gathered from the literature together with an additional twelve cases treated by this method at the Huntington Orthopedic Hospital during the past twenty-two months. I might add that this new treatment is being received rather skeptically by the more conservative members of the profession, due to the fact that the causative factor is not known.

The very large and extremely motley group of muscular dystrophies has been built up of a variety of forms since Duchenne in 1849 first described the fatty pseudohypertrophies and later in 1868 spoke of them as myosclerosis. Leyden, in 1876, described certain hereditary forms, while Erb, in 1883 first brought some order into the confusion of atrophies and dystrophies by showing that in certain forms the lesion was predominantly muscular and not nervous. Since that time the group has been better unified, its limits better recognized, and the various forms within it more thoroughly studied.

Muscular dystrophy is a progressive disease characterized by muscular weakness and wasting with or without a preceding hypertrophy. The pseudohypertrophic type of paralysis is merely a phase of the muscular dystrophies and not a clinical entity in itself; however, it is this particular phase that we wish to discuss.

Eitology and Pathology: No definite cause for the disease has been found. Males are more often affected than females, and heredity must be considered as an important element. The disease may occur in several generations in succession or in several members of the same family. The onset occurs early in life. Ninety-two and one half per cent of all cases have their onset before the patient is seven years of age. There is an initial hypertrophy of the individual muscle fibers, soon followed by degenerative changes. The normal muscle fibers are gradually replaced by deposits of fat and fibrous tissue. During the first stage the muscles appear larger than normal but are weaker than normal muscles of the same size, hence we have a gradually increased weakness in what appears to be a powerful muscle. Hypertrophic and degenerative changes are often found at the same time, in different fibers of the same muscle. As the disease progresses the fat and fibrous tisues atrophy and the muscles waste to below normal size.

Symptoms and Diagnosis: Clumsiness in walking and frequent falling, accompanied by enlarged calf muscles are first noticed; while a more careful examination will often reveal hypertrophy of the thigh and gluteal muscles, and of the deltoid and tricep muscles about the shoulder. There is an early wasting and general atrophy of the pectoral, rhomboid and serratus magnus muscles. The child stands with the legs separated, the shoulders thrown back and the abdomen protruding. The gait is waddling and awkward. When trying to arise from a sitting position on the floor the patient climbs up his legs, first putting the hands on the feet, then on the knees, thighs and finally on the hips in order to assume an erect position.

The clinical course is slow but steadily progressive; one group of muscles after another becoming atrophied. In the latter

*Read before the Junior Medical Society at Huntington on March 21, 1934.

stages the pseudohypertrophy disappears and the patient is unable to stand or sit alone. There are no sensory changes and the neurological examination is usually negative. In the early case the diagnosis is easy, but in the later stages, especially when a complete history of the onset cannot be obtained, the diagnosis is more difficult and may be confused with the progressive central muscular atrophies or paralysis and atrophy from peripheral neuritis.

Demonstrating method of climbing legs to assume erect position.

Consideration of Treatment: Before 1930 therapeutic procedure for a hopeful relief of this condition consisted of exercise, physical therapy, diet, calcium and glandular extracts, all with no appreciable influence on the steadily progressive muscular atrophy which terminated in complete helplessness and finally death; usually before sixteen years of age. In 1930 Kure and Okinaka advocated the use of pilocarpine and adrenalin as a treatment for muscular dystrophy and reported improvement in nine cases. In this country the most outstanding work has been reported by Dr. Garry Hough, Springfield, Mass. In 1931 he reported improvement in sixteen cases in which this treatment was used, and last year he reported twenty-two additional cases of his own together with fifty-six cases he collected from the literature and from personal communication. According to those observing this latter group of fifty-six cases, thirty-nine have been improved, fifteen remained unchanged and two have become worse under treatment. Hough reports a symptomatic benefit in practically all of his cases, but claims a cure of the disease in only one patient. In 1933 Voshell reported fourteen cases treated with a combination of glycocoll and epinephrine with definite improvement in nine cases.

Typical posture

In our groups of twelve cases we have used the epinephrine pilocarpine treatment in practically all stages of the disease. Administration has been by daily intramuscular injection of from .2 cc to .3 cc of a solution containing one part of one per cent solution of pilocarpine hydrochloride and two parts of .1 per cent solution of epinephrine hydrochloride. We have considered from six to eight weeks as a "course of treatment." At the end of this time the patient is sent home with instructions to return at monthly intervals for observation, and cautioned to continue the daily physical drill that was taught during the stay in the hospital. Usually, after an interval of two or four months the disease starts to progress, and the patient is admitted for another course of injections. A definite clinical improvement has been noted in every one of our cases, and in two patients the improvement was so marked that they might have been classed as cured except for the fact that at the end of four months they return with the disease again showing a slight progress. One of our cases, a boy eight years of age, was so far advanced that he could not raise his legs from the bed, and was unable to feed himself. At this stage there was a general atrophy of all muscles and none of the cardinal signs of a true pseudohypertrophic muscular dystrophy remained ;however a hospital record made three years previously showed all the fundamental characteristics of a case in the earlier stages. At the end of eight weeks of daily injections he could walk about the ward by holding to the side of the beds and with the aid of a double leg brace. To date he has not progressed past the point where the braces can be discarded.

The glycocoll treatment, one that has been tried during the past few years, sounds much more logical, and has a much more scientific basis or excuse for its use than the epinephrine-pilocarpine method, but lacks in clinical results. About two years ago we started the treatment of two cases with glycine or glycocoll, but on account of unfavorable reports that came out in the literature this treatment was discontinued before any conclusions of value were derived.

In treating these cases Dr. Hough used nothing whatever except the pilocarpine and adrenalin and even then considered the change in surroundings as a possible cause for some of the improvement. However, in our cases the injections were supplemented by a daily physical therapy with gradually increased muscle developing exercises and routine rest and play periods. We consider this supplement a valuable adjunct to the drug therapy.

Deformities may occur in neglected cases which require correction before any marked improvement can be hoped for. The one most frequently seen is a contracted tendo-achillis forcing the child to walk on his toes. The tendon should be stretched or lengthened and the foot held in dorsiflexion by means of a plaster cast for a period of three to five weeks.

In conclusion I wish to say that I consider the daily injection of pilocarpine and adrenalin a valuable treatment for pseudohypertrophic muscular dystrophy, and that it will give symptomatic relief. Sufficient time has not elapsed to tell whether it will prolong life or alter the mortality rate, but it is fairly reasonable to assume that a child who is able to walk about stands a better chance than one who is not able to move from its bed.

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URTICARIA FOLLOWING THE USE OF DINITROPHENOL*

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RECENTLY we had under our observation a patient admitted to the dermatological service suffering from a severe urticaria following the ingestion of dinitrophenol given for weight reduction and we herewith submit the following observation and case report.

CASE REPORT

C. M., female, aged 36, was admitted to my service on May 3, 1934, because of a severe skin reaction following the use of dinitrophenol taken in an effort to reduce her weight. The patient stated that on April 1, 1934, she began taking two tablets containing 100 mgm. each of dinitrophenol, daily for twenty days. A period of one week elapsed during which time no drug was taken. The drug was then administered for ten more days after which the patient noticed an acute swelling of both eyelids, lips and neck, associated with severe pruritus rapidly involving the entire body causing the patient to be admitted to the hospital. About ten pounds of body weight were lost during the administration of the drug.

Examination revealed an obese young woman in apparent distress from incessant pruritus. The face, lips and neck were edematous resembling an acute angioneurotic edema. The entire body was covered with small and giant wheals, tense to the touch and marked by numerous deep excoriations. The patient had an intense dermographism. Over the extremities the eruption was darker in color due to a slight pigmentation and gave the appearance of a fixed eruption. The hands and feet were distended, red, swollen, with large wheals on the palmar and plantar surfaces and bore evidence of severe pruritis. The mucous membranes of the mouth were inflamed with numerous herpetic lesions at the sides and angles of the mouth. The liver border was palpable and tender to pressure. Except for a fibroid degeneration of the uterus and a cystic left ovary, the physical examination was otherwise negative.

Laboratory Data: The blood count revealed: Red blood cells, 4,250,000; white blood cells, 6,500; polymorphnuclears, 60 per cent; small lymphocytes, 28 per cent; large lymphocytes, six per cent; monocytes, four per cent; eosinophils, two per cent; hemoglobin, 90 per cent. The blood sugar was 91 mgm. per 100 cc.; nonprotein nitrogen, 23 mgm. per 100 cc. and CO^2 was 56 volume per cent. The kidney function as expressed by the Mosenthal test and phenolsulphonphthalein excretion showed no abnormality. The Wallace-Diamond test was 1:20 on admission and 1:10 on discharge from the hospital. The urine analysis on admittance: Specific gravity, 1013; marked trace of albumin; 10-20 white blood cells with few hyaline and granular casts. On discharge the urine revealed a moderate trace of albumin; 2-3 white blood cells; no casts and 1022 specific gravity. The blood pressure was 126 68. Contact skin tests with the drug revealed a mildly positive in 1:2 dilution and negative reaction in 1:10. On admission the temperature was normal and remained so during her confinement in the hospital.

The treatment consisted of daily colonic irrigations, a high carbohydrate diet, topical soothing applications and colloidal bathing. On admission the patient was given 50 cc. of a 50 per cent glucose solution which was repeated four times the first day, twice the second day and once daily the remaining three days of hospital confinement. After

*From Western Pennsylvania Hospital.

the first injection of glucose, the patient received immediate relief from her pruritus and within forty-eight hours a marked recession of the skin lesions was noted. One week after discharge from the hospital the patient was again seen and no subjective symptoms were present but the skin over the areas of previous involvement presented a pigmentation resembling moderate recent suntanned skin.

5026 Jenkins Arcade

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

The Clinical Section of the 30th Annual Meeting of the National Tuberculosis Association was distinguished by the presentation of an unusual number of significant papers. Dr. Iago Galdston, who herein presents a summary of the papers, properly complained in his transmitting note, that he was, with keen regrets, obliged to gloss over much valuable material. For a detailed and conclusive presentation of the Clinical Section, the reader must be referred to the Transactions of the National Tuberculosis Association, which will be published in December, 1934.

Clinical Progress in Tuberculosis: Papers presented fall under three headings: diagnosis, treatment, and epidemiology.

Diagnosis: Under diagnosis undoubtedly the outstanding contribution was made by Dr. Esmond R. Long, of Philadelphia. On behalf of his coworkers and himself, he reported on the production of a standard tuberculin which will make possible a heretofore unachievable uniformity of data bearing on the epidemiology of tuberculosis.

Many workers have shown that there are variations in what might be termed the potencies of different tuberculins used in tuberculin testing. This variation in potency or provocativeness is unquestionably responsible for a substantial part of the difference in the reported variations of the prevalence of tuberculosis infection in comparable ages in different parts of the country. Unless the foundation of our tuberculin testing is sound, unless we have a uniform tuberculin and a uniform technique for testing, we cannot expect to achieve an intelligent epidemiology of tuberculosis. We cannot know what headway we are making; we are not able to determine whether tuberculosis infection is becoming more or less widespread or remaining stationary. According to Dr. Long, it is now possible to produce a substance, a purified protein derivative from tuberculin, which has a consistency not attainable before. This substance has a specificity, a high potency, and a uniformity of strength which will well serve as a solid foundation for tuberculin testing. We therefore now have in diagnosis a dependable means for the "census taking of the enemy."

Treatment: One was much impressed with the rapid and sound progress made by surgery. Undoubtedly, the application of thoracic surgery in the treatment of tuberculosis is becoming ever more widespread, largely because of the general advance made in general surgery in recent years. This progress includes the development of ingenious instruments, the greater utilization of electrical currents of various sorts, the advancement made in local, regional and general anesthetics, and in the better care we can give, both preoperative and postoperative, to our patients.

Thoracic surgery in the treatment of tuberculosis is not new. Forlanini, Jacobeus, Lilienthal and others urged its value decades ago. That it has come to the forefront today is due to the fact that in surgery, as in medicine as a whole, every scientific advance is "grist to the mill."

Most impressive were the reports showing the value of pneumolysis, the severing of adhesions which interfere with effective collapse.

Naturally, the clinicians are keeping a close check on the surgeons, serving to keep in restraint excesses of enthusiasm. The paper by Dr. J. W. Cutler, of Philadelphia, in which he presented the clinical analysis of 200 consecutive cases, with a description of the technique and the instruments used, was particularly interesting.

Epidemiology: One very interesting and suggestive report is that of a study on the relationship of hypersensitiveness to resistance, made on experimental animals (guinea pigs) in the Saranac Laboratory. This study, which we hope will be carried further, deserves the most careful scrutiny by everyone interested in the immunology of tuberculosis. It promises to have a significant bearing on that provocative problem as to whether infec-

tion with the tubercle bacillus confers added resistance to tuberculosis.

In this study, guinea pigs were infected with the tubercle bacillus, but so treated with tuberculin as not to be permitted to develop a hypersensitiveness. (That they were not hypersensitive was proved by the fact that they never developed a positive tuberculin reaction.) These guinea pigs withstood their infections better than those animals which were similarly infected but which were allowed to develop tuberculin hypersensitiveness.

From several quarters, too, there came epidemiologic notations on the resistance of the Negro to tuberculosis. The general impression produced by the reports was that the Negro has no particular demonstrable susceptibility to tuberculosis, which singles his reaction to the disease as against the white mans'. On the contrary, the Negro's response to treatment is in every respect as good as that of the white race.

Dr. Dochez's discourse on "Acute Infections of the Upper Respiratory Tract," reports on studies of the influence of vitamin C on experimental tuberculosis in guinea pigs, Dr. Richard M. McKean's and Dr. Gordon B. Myers' study on "Tuberculosis and Diabetes," have important bearings on the epidemiology of tuberculosis, in that they point to the importance of non-specific, that is, nutritional resistance to tuberculosis. Astutely it was pointed out by one discussant that if the diabetic is particularly susceptible to tuberculosis because of a disturbed nutrition, the individual whose nutrition is disturbed not by lack of insulin but by improper or inadequate intake of nutriment (whatever be the cause of that—poverty, ignorance, flaming youth, etc.), may similarly prove to be especially subject to tuberculosis.

OBITUARIES

DR. G. B. WHEELER

Dr. G. B. Wheeler of Lexington, Kentucky, died in a Charleston hospital on September 12 following a major operation. He was born in Clay county, West Virginia, and practiced in this state until 10 years ago when he moved to Lexington and took charge of a hospital there. Dr. Wheeler was licensed in West Virginia in 1912 immediately following his graduation from the University of Maryland Medical College.

Dr. Wheeler is survived by his widow and one son, one brother and two sisters. He was a brother of the late Dr. B. B. Wheeler of Charleston and Beckley.

DR. J. E. McQUAIN

Dr. J. E. McQuain, 70 years of age, died on September 19 at the Spencer State Hospital, of which he was superintendent. He had been in ill health for several months. Dr. McQuain was appointed head of the Spencer State Hospital on August 23, 1933, by Governor Kump, which returned him to his native city from Parkersburg, where he had been in private practice for several years.

Dr. McQuain was born in Gilmer county and received his preliminary education at Glenville normal school, later studying medicine at Louisville, Chicago and the University of Pennsylvania. He began the practice of medicine at Spencer and was appointed assistant superintendent of the hospital, serving until the World War. After overseas service in the war as a medical officer, he returned to Parkersburg. Dr. McQuain is survived by his widow and several children.

SAFETY AND EDUCATION

The modern mother is confronted with a more baffling problem in protecting her children from the dangers of the world than ever before. Children of today face most of the long established dangers such as fire, poisons and stairs, sharp objects and cutting tools, and in addition nearly 25 million automobiles waylay them on streets and highways. It is certain that the improved methods of recording accidents makes the mother more conscious of their appalling extent than ever before.

One of the first principles of child safety, according to Curtis Billings who writes on "Teaching Your Child to Be Safe" for the September *Hygeia*, is the establishment of a safe home by the mother. To have a safe home is at least as important as to have a clean home.

The second fundamental is that safe habits must be painstakingly taught to children. Safe habits cannot be instilled in them by intermittent and impatient scoldings and cross "don'ts," nor are threats of disaster effective in preventing mishaps to children. For instance, children may be taught through actual and repeated demonstrations how to cross a street safely.

PRESIDENT'S PAGE

Our Medical Relief Committee

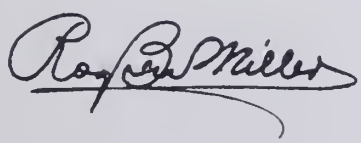
As our administration begins to near its close, we wish to pause long enough to pay tribute to three men who, with little credit and less ballyhoo, have worked almost unceasingly during the past year on behalf of the private physicians of West Virginia. I refer to Dr. B. H. Swint, Dr. R. D. Roller and Dr. G. G. Irwin, all of Charleston, who make up the association's committee on medical relief.

These three men have served as the buffer between our association and state medicine. Because they are dealing with state medicine, they have received much blame and little credit. All the ills of the present medical relief program in West Virginia have been traced to these three doctors. They have taken their rebuffs without complaint and have gone quietly ahead giving their time and effort unselfishly to protect the private practice of medicine.

Any system of state medicine is repulsive to the rank and file of the medical profession. Any doctor or group of doctors who deal with state medicine are bound, sooner or later, to be identified with the movement. That is why the medical relief committee of the West Virginia State Medical Association has been criticized, invariably without just cause, for working with a system of practice that is antagonistic to the general practitioner.

The state medical relief committee has done and is continuing to do a noble work. This committee has been able to cope with huge federal appropriations for medical aid and still keep the control of medical service within the hands of organized medicine. This committee has built up state-wide machinery in each county society to handle local problems pertaining to emergency medical aid. This committee has met sometimes three and four days a week to keep pace with ever-changing conditions. This committee did not create the present system nor did it ask for the job of handling it. This committee was called on to cope with the hundreds of problems that sprang up almost overnight when the present system of medical relief rolled in from Washington more than a year ago. If you don't like the system, that is all the more reason why you should support the committee.

Dr. Swint, Dr. Roller and Dr. Irwin, allow me as President of the West Virginia State Medical Association to express to you my deep appreciation for your altruistic devotion to the medical profession and for your earnest and unselfish efforts in behalf of the private physicians of this state.



President.

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WHAT AILS NURSING?

Undereducation and overproduction are the two chief ailments of the nursing profession today, according to the final report of the Committee on the Grading of Nursing Schools. This report was released on September 15 following eight years study.

Commenting on overproduction, the report points out that since 1900 the general population of the United States has increased 62 per cent while the number of trained nurses has increased 2,374 per cent. "The reason why nursing has grown so fast," states the report, "is that student nurses render services to the hospitals which are so valuable that, in return, the hospitals are glad to defray all their living expenses and to pay small monthly allowances in addition. Nursing is the only profession in which the student is usually maintained without cost to the family from the beginning of the first year of professional education."

The problem of the undereducation of the nurse, the committee found to be closely associated with that of overproduction, and both traceable to the same set of circumstances, namely, faulty application of the apprentice system and the use of the nursing school to provide nursing service to the hospital. Summing up the 1,583 nursing schools in the United States the report points out "There are three sorts of nursing schools in this country; a few very good ones, a few which are very poor, and a good many which are neither good nor poor." The report believes that the many poor and mediocre schools are subordinated to the hospital.

As a remedy of the nursing situation in this country, the committee believes that the one sure cure is to close most of the training schools. "There is no hope of permanent improvement in nursing so long as the schools continue to graduate 25,000 or more new nurses each year . . . . The movement of graduate nurses back into the hospitals, if it continues, may mean the salvation of the profession, because it will make possible the closing of superfluous schools.

In closing, the committee believes that the present system of nursing education is not attracting as many women of adequate capacity and basic training as would be desirable, and is not giving them the quality of training which fits them for the demands of their professional career. The fundamental cure of this evil can be effected only by the development of nursing schools which are directed with a primary educational aim and animated by professional ideals. They must function as educational institutions.

INDIGENT MEDICAL SERVICE

Several days ago the West Virginia Relief Administration sent out a bulletin to all county relief administrators insisting that the county administrators seek a closer spirit of helpfulness and coöperation from the local county medical societies. This bulletin called attention to many of the problems incident to medical aid to the unemployed and pointed out that such problems could not be successfully handled except through and by the county medical societies or their representatives. We heartily concur with the spirit of this bulletin.

The major problem listed in the above mentioned bulletin concerned the authorization of non-emergency cases. The bulletin pointed out that the medical profession was making quite a sacrifice to take care of relief

cases at one-half or less than half of their regular rates. The bulletin then went on to say that relief administrators should not take advantage of the profession by authorizing medical care unless it was really necessary. "If you are in doubt as to what constitutes a medical emergency," said the bulletin, "that is the first problem you should take up with your county medical society."

On the subject of padded bills, the bulletin stated that there had been some evidence of this evil. "We feel," the bulletin pointed out, "that this condition can be almost entirely eliminated by asking your county medical society to go over the monthly bills of its members. A doctor might attempt to put over a padded bill on a lay administrator, but he would think twice before attempting to put something over on a committee of his medical confreres." The bulletin suggested the possibility of an alternate medical relief committee in some counties if the regular members do not wish to go over their bills.

We are glad to see the West Virginia Relief Administration with such an apparent appreciation for the services of organized medicine. We feel that this attitude is almost entirely due to the service rendered the administration by the medical relief committee of the state association. The three members of the state committee, Dr. B. H. Swint, Dr. R. D. Roller and Dr. G. G. Irwin, meet regularly each week with the relief administration to adjust problems and details sent in by county administrators and county medical societies. Apparently the West Virginia Relief Administration feels that the same spirit of harmony and coöperation should be a part of the relief program in each county in the state.

The weekly meetings of the state medical relief committee have been copied with unusual success by several of the larger county societies. We believe that the relief committee of each county society should have a regular meeting date with the county administrator to handle the problems that are now being sent up to the state committee. In any event the relief administration has insisted that all county administrators coöperate fully with the various county medical societies. We urge the county medical societies to show a similar spirit of coöperation toward their local relief administration.

HOSPITAL MEETING OCTOBER 5

The annual meeting of the Hospital Association of West Virginia will be held at the Hotel Morgan, Morgantown, on the morning, afternoon and evening of October 5. Although the completed program has not yet been published, one of the features of the session will be an address by Dr. Robert Jolly of Texas, former president of the American Hospital Association.

Dr. T. K. Oates of Martinsburg, president of the Hospital Association of West Virginia, has plans practically completed for the meeting and a record turnout is anticipated. Election of officers will be held at this session and the legislative program worked out for the coming session of the West Virginia legislature. Most of those who attend the Morgantown meeting expect to remain over for the Pittsburgh-West Virginia University football game the next day.

BARBERS AND BEAUTICIANS

During the recent flurry of physical examinations and blood Wassermann tests for barbers and beauticians, many doctors called attention to the provision relative to positive blood Wassermanns. In July, 1934, the State Committee of Barbers and Beauticians met in Charleston and voted to refuse to issue a certificate to any barber or beautician found to have a positive blood Wassermann. This ruling was challenged by many members of the medical profession who claimed that a positive blood Wassermann was not necessarily proof of contagion or infection.

In view of the above complaint, the ruling was modified at a meeting of the State Committee of Barbers and Beauticians at

Fairmont on August 19. We publish herewith the resolution adopted by the committee at the Fairmont meeting:

"*Be it Resolved*, That the State Committee of Barbers and Beauticians in regular session held at Fairmont, August 19, 1934, and recognizing that the law creating this committee requires each applicant to submit a Wassermann blood test and certificate of health from a licensed physician as prescribed in section six of the same bill.

"WHEREAS, under section 13 of the above mentioned bill this committee may refuse to issue a certificate of registration or may suspend or revoke the same for any holder thereof for numerous causes, one specific one being a person afflicted with a contagious or infectious disease.

"WHEREAS, this committee at a regular meeting held in Charleston, W. Va., in July, 1934, voted to refuse to issue a certificate to any barber or beautician found to have a positive blood Wassermann.

"WHEREAS, information obtained from physicians who stand high in their profession is that persons may go through life with a positive blood Wassermann and in no wise can they be classed as being either contagious or infectious. Moreover, the blood Wassermann may remain positive in some individuals irrespective of the treatment given.

"WHEREAS, this committee recognizes that the ruling disqualifying all persons showing positive blood Wassermanns without clinical evidence to support a diagnosis of syphilis, will necessarily result in an undue hardship on some barbers or beauticians who were ignorant or innocent of this condition.

"*Now be it Further Resolved*, That this committee wishes to modify its previous ruling regarding blood Wassermanns. Any applicant found to have a positive blood Wassermann will be refused a certificate of registration. The applicant may, at the expiration of forty-five days from time of rejection, present to the state health commissioner a certificate from a duly licensed physician, in good standing in his or her county or state medical society, stating that the applicant has been under active treatment during this forty-five day period. They shall also show that they are free from any clinical signs of syphilis. This committee further recommends that the health commissioner accept certificates from none other than those physicians who practice what is known as regular medicine. The health commissioner may, after being assured of the accuracy of the certificate filed, issue to the applicant a certificate of registration. The applicant shall be notified in writing that he or she shall file with the health commissioner every six months a certificate from his or her physician, stating that he or she has been under the care or supervision of that physician during this six months period. Failure of the applicant to carry out this provision shall result in the revoking of the certificate granted. When so revoked, it may be restored at the discretion of this committee.

OUR CODE OF ETHICS

Questions are raised from time to time relative to the code of ethics of the medical profession. It is felt that oftentimes physicians themselves are none too familiar with this code. In order that the doctors may brush up on the code, we publish herewith the section pertaining to unprofessional conduct:

"It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession.

"By the term 'contract practice' as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical service to a group

or class of individuals for a definite sum or a fixed rate per capita.

"Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: (1) When there is solicitation of patients, directly or indirectly. (2) When there is underbidding to secure the contract. (3) When the compensation is inadequate to assure good medical service. (4) When there is interference with reasonable competition in a community. (5) When free choice of a physician is prevented. (6) When the conditions of employment make it impossible to render adequate service to the patients. (7) When the contract because of any of its provisions or practical results is contrary to sound public policy.

"Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate, temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole."

CONFERENCE OF SECRETARIES

The annual conference of secretaries of constituent state medical societies of the American Medical Association was held at the Palmer House in Chicago on September 22-23, 1934. The West Virginia State Medical Association was represented by Mr. Joe W. Savage and the WEST VIRGINIA MEDICAL JOURNAL by Dr. Walter E. Vest, associate editor.

Problems of medical economics, chiefly concerned with emergency medical relief, featured the conference. Medical journal problems also came in for a fair amount of discussion. Among the speakers were Dr. J. H. J. Upham, Columbus, chairman of the American Medical Association Board of Directors; Dr. James S. McLester, president-elect of the American Medical Association; Dr. Walter L. Bierring, president; Dr. William C. Woodyard, director of the A. M. A. Bureau of Legal Medicine, and Dr. R. G. Leland, director of the A. M. A. Bureau of Medical Economics.

COUNTY SOCIETY NEWS

MONONGALIA COUNTY

The ninth regular meeting of the Monongalia County Medical Society was held at the Morgantown Country Club on the evening of September 4. Following dinner at 6 o'clock, the meeting was called to order by Dr. B. M. Stout, president. A number of business matters were brought up, particularly in regard to fees for physical examinations for barbers, school teachers, FERA employees and others.

It was also pointed out during the business meeting that many children were being sent out of the county to outside clinics to receive medical and surgical attention provided by the state. After some discussion, the society authorized the appointment of a committee with broad powers to investigate this and other phases of medical practice affecting members of the society.

The essayist of the evening was Dr. Paul Titus of Pittsburgh who spoke on "Causes and Treatment of Sterility." Lantern slides and instruments were shown to demonstrate recent advances in this field. Discussion was led by Dr. C. B. Pride, Dr. Dorsey Brannon and Dr. Stout. Twenty-six members and guests were in attendance.

RALPH MAXWELL, *Secretary.*

LEWIS COUNTY

The regular monthly meeting of the Lewis County Medical Society was held at the State Hospital at Weston on the evening of September 11 with Dr. G. C. Corder, president, presiding. The business meeting was dispensed with.

The program was presented by Dr. R. H. Walker, Charleston, president-elect of the state society, and Mr. Joe W. Savage, executive secretary. Dr. Walker spoke on the importance of organized medicine in West Virginia and pointed out the many advantages of an active and aggressive medical society. Mr. Savage talked on the many problems incident to medical care under the FERA. Both Dr. Walker and Mr. Savage stressed the need for a strong medical organization in each county to protect the interest of the individual physicians.

The Lewis County Medical Society was not in regular session during the summer months but a special meeting was held on the evening of July 31 to hear Dr. William Neill of Baltimore, who

was making a professional visit to Weston. His subject was "The Value of Radiation in Gynecology." An interesting informal discussion followed with a number of members and visitors taking part.

Dr. Neill is a son of the late Dr. William Neill of Jefferson county and is a member of the staff of the Howard A. Kelly Hospital, Baltimore.

Dr. E. T. W. Hall, of Weston, has recently returned from an extended trip through the southwest which began with his attendance of the American Medical Association convention at Cleveland. He was accompanied by his daughter.

Dr. Ralph Fisher, Weston, was recently married at St. Paul, Minnesota, to Miss Dorothy Mae Johnson of Perry, Iowa.

THERESSA SNAITH, *Secretary*.

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of September 11 with a good attendance. A number of business matters were disposed of, including the election to membership of Dr. Paul Revercomb, Dr. W. O. MacMillan, Dr. McCloud Gillies and Dr. Herbert Wise, all of Charleston. There was also discussion of the prospect of securing a full-time executive secretary to serve the Kanawha Medical Society.

The scientific program was presented by Dr. V. E. Holcombe and Dr. Walter W. Point. Dr. Holcombe spoke on "Some Lesions of the Esophagus" and discussion was opened by Dr. Wirt B. Wilson. Dr. Point talked on "The Management of the Average Normal Obstetrical Delivery" and a general discussion followed his presentation.

DR. ANDREW E. AMICK, *Secretary*.

FAYETTE COUNTY

Members of the Kanawha and Raleigh county medical societies were guests of the Fayette County Medical Society at the September 18 meeting which was held at the White Oak Country Club at Oak Hill. The doctors gathered at 2 o'clock in the afternoon for golf, and dinner was served at 7 o'clock. Following this, the scientific program was presented.

The essayist of the evening was Dr. R. R. Sayers, medical officer in charge of industrial hygiene and sanitation of the United States Public Health Service, Washington, D. C. Dr. Sayers spoke on the subject of industrial hygiene and sanitation and discussion was opened by Dr. A. E. McClue, state health commissioner of Charleston, Dr. George Fordham of Powellton and Dr. W. W. Hume of Beckley. This was followed by a general discussion by the members and guests in attendance.

RALPH HOGSHEAD, *Secretary*.

CABELL COUNTY

An interesting and novel meeting of the Cabell County Medical Society was held at the Hotel Pritchard, Huntington, on the evening of September 13 when a representative interne from each of the three Huntington hospitals presented a case report on his respective service.

The program was opened by Dr. C. H. Plymale of the Chesapeake and Ohio Hospital, reporting on a case of "Acute Glossitis." He was followed by Dr. C. F. Davis of St. Mary's Hospital with a case of "Coronary Occlusion Without Pain." Dr. W. V. Bradshaw of the Memorial Hospital concluded the program, reporting a case of "Stab Wound of Liver."

EDWIN MATTHEWS, *Secretary*.

BIRTH STATISTICS

A thorough inventory of births occurring in West Virginia during the past 12 months is now being made at the Division of Vital Statistics of the state health department, following impetus received from the six weeks "Register Your Baby" campaign which was carried on by the Division of Vital Statistics, the Federal Bureau of the Census, and the West Virginia Relief Administration.

Checking and rechecking the hundreds of cards received daily at the Division of Vital Statistics, a group of FERA workers is testing the accuracy of present birth records of the state. The cards were mailed a few weeks ago to every family in the state, requesting certain data concerning children born in the past year. They were returned to Washington and from there forwarded to Charleston.

The "Register Your Baby" campaign has been a large success, due mainly to the newspapers and radio stations of West Virginia, according to Dr. John F. Cadden, director of the campaign. Through the columns of the state newspapers and by broadcasts from the state's radio stations, West Virginians were informed of the purpose of the campaign and its efforts to obtain complete birth records for the Division of Vital Statistics.

WOMAN'S AUXILIARY

CABELL COUNTY

The Cabell County Medical Society Auxiliary convened on Monday, September 10, 1934 at the home of Mrs. Gilbert A. Ratcliffe, president. Mrs. John McClintock spoke to those present in the interest of the community chest and asked the coöperation of the organization in the forthcoming drive.

The secretary, at the request of the president, read Mrs. M. F. Petersen's and Mrs. V. E. Holcombe's article "Auxiliary Program Suggestions" from the WEST VIRGINIA MEDICAL JOURNAL for September, 1934. An informal discussion of the article followed during which the members of the Auxiliary expressed their approval and determination to follow the suggestions as nearly as possible.

After the decision to hold the next meeting on October 8, 1934 at the home of Mrs. Wesley Thomas, the meeting was adjourned.

KANAWHA COUNTY

The Auxiliary to the Kanawha Medical Society held a luncheon meeting at "Tally-Ho" on September 11, 1934. The president, Mrs. O. H. Bobbitt, presided over the thirty-four members and four guests who were present.

During the session Dr. John Moore addressed those present on "How Doctors Wives Can Aid the Medical Society." This was followed by a discussion of "Hygeia" and its circulation which was led by Mrs. O. L. Aultz.

Mrs. John Moore, chairman of delegates to the state convention gave her report.

There being no further business, October 9, was selected as the next meeting date and the meeting was adjourned.

McDOWELL COUNTY

The Auxiliary to the McDowell County Medical Society met on September 11, 1934 at the Appalachian Community Rooms in Welch, W. Va. A luncheon was served to the twelve members who were present.

Mrs. W. B. Stevens, president, presided over the business meeting which followed. Letters from Mrs. M. F. Petersen, state president; Dr. H. T. Schiefelbein, and in regard to subscriptions for *Hygeia* were read and discussed. It was decided by the Auxiliary to place *Hygeia* in the twenty high and junior high schools in McDowell county for the coming year.

Mrs. M. F. Petersen was invited to be present at the Auxiliary's next meeting which will be held in the month of October. There being no further business the meeting was adjourned until a later date.

HELEN W. CONLON, *Secretary.*

SOUTHERN MEDICAL

The Woman's Auxiliary to the Southern Medical Association will meet in San Antonio, Texas, November 13 to 16, 1934. Headquarters for the women will be in the St. Anthony Hotel where all meetings, luncheons and dinners will be held.

Mrs. Southgate Leigh, president of the Southern Auxiliary, has written as follows:

"It is earnestly desired that our women of the south will make every effort to attend this meeting. Your presence will not only help the meeting but will be a great inspiration to you yourselves. San Antonio is delightful and everything possible is being done to make your visit enjoyable.

"A cordial and pressing invitation is extended to everyone to attend the Auxiliary luncheon on Wednesday, November 14, to meet Mrs. Robert Tomlinson, national Auxiliary president and other distinguished guests."

THE WOMAN'S AUXILIARY

I venture to say that it can be stated without any probability of contradiction that of all men in the industries and the professions, the medical man is the most oblivious of his opportunities of economic advancement.

There are several reasons for this state of affairs, chief among which are the many legendary beliefs connected with the history of medicine. Likewise, the ethics of the profession have inclined to cause the physician to lead a more or less isolated life and let the rest of the world go by. In spite of the fact that the physician's education and training should cause him to occupy a leading part in every community, his disposition has been to hold aloof from politics and the progressive activities of his surroundings. The time has come when it is nec-

essary for him to call to his aid every possible means to protect his own position and to strengthen and further the interests of the medical profession at large.

As we see it, one of the potent aids in this direction is the Woman's Auxiliary, and it is difficult for me to understand the lack of enthusiasm and failure to appreciate this fact by a certain number of our colleagues.

Born at the instigation of the American Medical Association, and endorsed by most state medical societies, it should have the unanimous support and assistance of the medical profession. Misunderstanding of its functions and potentialities, along with fear that it might overreach itself, has prompted some men to withhold their support. Inasmuch as the Auxiliary is under the guidance of medical advisors, the second of these objections is of small value. The members of some county societies are inclined to consider the Auxiliary as a social organization for bridge, teas, and what have you. This is far from the intention of its organizers, and its officers. The Auxiliary, made up entirely of the wives of physicians, proposes to meet monthly to discuss social problems and ways and means of advancing the interests of the community along social and medical lines. The term "auxiliary", according to Mr. Webster, means an "aid", a "help"; hence, an aid to the medical fraternity: to combat quackery, to support proper school health programs, to make studies in physical and mental hygiene, to familiarize the public with the worthiness of the medical profession through contacts with women's clubs of various characters, to stimulate the study of health measures in the public schools, and many other activities of a similar nature. The Wisconsin State Auxiliary has undertaken the task of getting *Hygeia* into all the schools of the state, so that with what the state medical society is doing along this line Wisconsin will be pretty well covered in this respect. *Hygeia,* being a child of the American Medical Association, this campaign must serve to help the public to a better understanding of what the medical profession is endeavoring to do in their behalf.

Since the medical profession has asked for this organization, and has helped it on its way, it seems only fair that we should give our full support to this group of women who are aiding us in so many ways by their untiring, unselfish, and intelligent effort. A. W. R.—*Wisconsin Medical Journal.*

GENERAL NEWS

HEART ASSOCIATION MEETING

Dr. G. H. Barksdale, Charleston, president of the West Virginia Heart Association, has announced a business meeting of that organization to be held at the Daniel Boone Hotel, Charleston, at 11 o'clock on the morning of October 8, 1934. All physicians interested in cardiology, whether members or non-members, are urged to be present and take part in the proceedings.

MEDICAL AID PROGRAM

A year's experience with medical care of the unemployed under the temporary provisions of the Federal Emergency Relief Administration indicates that such a medical program must be built up into a continuing one, says the American Public Welfare Association, in a report just issued.

However the plan is permanently set up, the report points out, there must be allowance for variations in procedure, since resources and demands in the various sections of the country differ widely. To make wise planning possible, adequate information is essential and communities now operating medical aid programs will have to keep more definite statistics than they have so far, showing how many people are aided and what types of aid are given.

Twenty-nine of the 48 states surveyed by the association, report a successful organization of their medical aid systems under FERA. Nine of these states have adopted a state-wide plan and scale fees for their doctors and nurses, with county or city administration on a state-recommended pattern.

Half of the states with medical aid programs have limited their service to home and office calls for acute illnesses, making no general provisions for surgical or chronic care. The others have provided for care of chronic illness and even give a limited amount of corrective service.

Lack of money and fear of increase in costs have been heavy drawbacks to the success of some of the medical aid programs, the survey shows. Poor facilities and untrained personnel, and difficulties in adjustment of relations with the medical professions and local public health services are among others.

The first year's experience, however, has done much to teach communities that they are responsible for medical aid to their poor, and cannot ex-

pect it from physicians for nothing. They have learned that to be successful, the medical aid program must have effective local supervision and control of costs, hospitalization must be provided for in the future and greater provision must be made for care of chronic illnesses and for special services.

RADIUM AND X-RAY

Resolutions relating to the improper use and improper advertising of radium, and to the use of x-ray in the treatment of cancer have recently been circulated by the American Radium Society. The resolutions were passed by the society last June and have been approved by the American College of Radiology and the Section on Radiology of the American Medical Association. The resolutions follow in part:

"WHEREAS it is now recognized that radium has been demonstrated to be of definite value in the treatment of disease, and

"WHEREAS some states and many communities in the country have little or no radium available, and

"WHEREAS funds are not always available for the purchase of suitable preparations of radium for use by those physicians who are qualified in radium therapy, and

"WHEREAS we recognize that radium is an agent as potent for doing harm as for doing good when used without sufficient skill or training and with the hope of protecting the uninformed public from serious and irreparable injury from improper and insufficient treatment.

"*Be it Resolved* that we consider it improper, unethical and detrimental to the science of radiology and to the good of suffering humanity for commercial laboratories to attempt to give advice or directions as to the use of radium in the case of a patient whom the person giving that advice has not even had the opportunity to examine. In other words, it is just as difficult to give such advice and directions as it would be for a surgeon to give directions for the use of rented surgical instruments so that an untrained physician might attempt an operation. Various commercial companies advertise both in the journals and through the mails, medical advice for the purpose of making sales or renting radium or radon. This places those corporations in the field of practicing medicine.

"WHEREAS, it has been proven that radium and x-rays, when used properly, and in sufficient quantity, is efficient in the treatment of cancer in certain locations, and

"WHEREAS, there is a general fear in the public mind from x-ray or radium burns, which because of this fear, prevents competent radiologists from using sufficient radium or x-ray to produce the best results.

"*Be it Resolved* that we as radiologists recognize that in the treatment of malignant disease, it is often necessary to carry the treatment on to the extent of producing a violent reaction in the surrounding tissues, which may cause the skin to peel, and blisters to form, in order to give sufficient treatment to overcome the malignant disease. We believe, therefore, that it is justifiable to produce a second degree radiodermatitis when necessary."

CHRISTIAN SCIENTISTS

When the arch-foe of scientific medicine, the sect of Christian Scientists, comes out flatly against state medicine, not because this monstrous jape is medicine, but because it is political jobbery spawned by chaos and communism, then indeed would *le dernier mot* appear to have been spoken!

Now, no matter what other accusations may have been made against the followers of the cult and creed established and expounded by the late Mary Baker Glover Eddy, nowhere has there ever been raised so much as a breath, let alone a whisper, as to the patriotism, the simon-pure Americanism of the members of the Church of Christ, Scientist. Nor, and it must be stated emphatically that this comment is free from any idea of disparagement, has there ever been any doubt in the minds of the non-Eddyites that this same group lacks business ability. Quite the contrary! For commercial acumen, Christian Scientists are decidedly celebrated. A Christian Science healer or reader can collect his or her bills with a maximum of totality that leaves the average practitioner of medicine, deaf, dumb and blind from envy. Whatever criticism against Christian Science may or may not be founded, the lack of a good business sense is not one of them. That "charity begins at home" and that "faith without works," or prayer without the purse doesn't amount to the proverbial picayune is a well established tenet of the practicalities of the followers of Mother Eddy.

It is therefore with interest that even the critics of Christian Science note with what emphasis the cult puts thumbs down on state medicine and all its works.

Dispassionately the Scientists have discovered that state medicine is not only what it purports to be but an insidious attack upon that part of civil-

ization that is trying to stand, man to man, shoulder to shoulder for an equable distribution of the carrying charges of human existence.

So strongly does the membership of the Church of Christ, Scientist, feel on this subject that it is a matter of comment in the mouthpiece of the organization, the *Christian Science Monitor.*

Against this politically controlled injustice the editorial columns of this periodical, one of the most ably edited in the country, speaks frankly and precisely.

Terming state medicine "medical peonage," this editorial says:

"The family physician who brought kindliness, ready sympathy and unselfish service in large quantities along with his pills and potions has been passing from the American scene; more and more his place has been taken by a complex mechanism, a highly departmentalized professionalism, with impersonal efficiency its dominating sentiment. Now there is a tentative plan for a broad organization of 'state medicine,' as recently outlined by the secretary of the Milbank Memorial Fund of New York. This plan, utterly impersonal, purposes that the American population—including that 62 per cent which the fund's spokesman says receives no medical, dental or eye care of any kind—shall be coerced into supporting financially and yielding physically to the domination of a group of state-employed men.

"It is difficult to understand why every citizen —including those who by choice would adhere to a rival school, to no school, or who depend upon prayer for healing—should be compelled to comply with such a regulatin. Incidentally, it is strangely foreign to the legend of the family doctor, who worked under the motto, 'To each according to his means.'

"Yet it is just this point which the Milbank fund stresses as its reason for proposing compulsory state medicine. The complexities of modern medical practice, it is claimed, have elevated its cost above the means of many who wish it. Therefore, what could be simpler than for everyone to contribute his proportionate share of the total cost of medical aid, thus minimizing the per capita cost according to the well-known practice of insurance?

"If those who feel they wish material aid in their illness were left free to enter or refrain from participation in such a scheme, no criticism could be leveled at it. But, in order to make the plan thoroughly effective, says the fund's secretary, it must be made compulsory upon all. But will that 62 per cent of the people who have not felt the need of medicine sufficiently to seek its aid—although it is offered without cost in countless hospitals and clinics—permit themselves to be saddled with medical peonage?"—*Illinois Medical Journal.*

ANNUAL HOSPITAL MEETING

The ninth annual meeting of the Hospital Association of West Virginia will be held at the Hotel Morgan, Morgantown, on October 5, 1934. The program for the meeting has just been released from the office of Mr. Charles W. Warner, executive secretary, and a number of interesting papers are scheduled for presentation.

The meeting will be called to order at 10 o'clock by Dr. T. K. Oates, president, who will deliver his presidential address on the subject, "Sterilization of a Particular Class of Patients." Following the invocation, the address of welcome will be delivered by Dr. C. H. Maxwell, and the response will be made by Dr. John W. Moore, Charleston. The report of the secretary will be made by Mr. Warner during the morning session.

Dr. J. E. Offner, superintendent of the Weston State Hospital, will open the afternoon session with a paper on "Sane Hospitalization and Treatment of the Insane." He will be followed by Dr. Eldon B. Tucker, Morgantown, with a paper on "Anesthesia in West Virginia." The afternoon program will be concluded by Dr. W. T. Gocke, Clarksburg, with a paper on "Relationship between Operating Room and Laboratory."

The annual banquet will be held that evening at 6:15 o'clock at the Hotel Morgan with Dr. W. S. Fulton, Wheeling, as toastmaster.

HEART COUNCIL MEETING

The Academy of Medicine of the Heart Council of Greater Cincinnati have invited all West Virginia doctors to attend the second annual institute on cardiovascular disease to be held under their joint auspices on October 29, 1934. The opening session will be held in the surgical amphitheatre of the Cincinnati General Hospital. The medical, pediatric and pathology departments will present material dealing with the different phases of circulatory disorder.

Visiting guests and local physicians will conduct clinics and present cases at several of the Cincinnati hospitals. At 4 o'clock there will be a meeting of all interested physicians to consider the

proposed organization of a regional heart association.

The evening meeting will be held jointly with the Cincinnati Academy of Medicine in the Union Central Building. The meeting will be devoted to a symposium on "Cardiac Pain." The essayists will be Dr. Louis Hamann of Baltimore and Dr. Walter Hamburger of Chicago.

Dr. Floyd P. Allen, executive secretary of the Heart Council, has asked that doctors notify him not later than October 22 if they expect to attend the sessions on October 29. A large number of the members of the West Virginia Heart Association, including the official personnel, expect to be in attendance. Steps have already been considered to organize a regional heart association consisting of West Virginia, Ohio, Kentucky and Indiana for the purpose of securing the best talent in the country for program material.

BOOK REVIEWS

TUBERCULOSIS IN CHILDREN

"Tuberculosis in the Child and The Adult" by Dr. Francis Marion Pottenger, Clinical Professor of Medicine (Department of Chest) University of Southern California, School of Medicine, has been published by the C. V. Mosby Company of St. Louis, Missouri. The volume contains 611 pages and is priced at $8.50.

Dr. Pottenger has written a very thorough discussion of Pathologic Anatomy, Pathologic Physiology Immunology, Diagnosis and Treatment of Tuberculosis in the child and the adult. The volume is compact and contains facts about tuberculosis as they have been discovered in recent years and as Dr. Pottenger has observed and interpreted them in his practice. This discussion is of particular value to students and younger practitioners who have not had the privilege of following contemporaneously the advancement that has been made during the past three or four decades.

In preparing this discussion, Dr. Pottenger has succeeded in bringing out the most important phases of tuberculosis as follows:

1. Childhood Infection;
2. The reactions of the body toward infection;
3. The part that immunity reactions play in diagnosis;
4. The proper choice of methods of treatment;
5. Agencies through which the body acts in the presence of disease.

This book contains fairly complete bibliographic references to the author's publications in current medical literature. Most of these papers represent abstracts of addresses given before various medical associations; and, taken in their entirety, give a fair picture of the particular phases of tuberculosis which have dominated the minds of specialists during the past thirty years.

SPINAL ANESTHESIA

"Spinal Anesthesia" by George Rudolph Vehrs, M. D., Salem, Oregon, was published by the C. V. Mosby Company of St. Louis, Mo., and contains 269 pages. The price of this volume is $5.50.

This book constitutes a survey of the experimental and clinical records in the field of spinal anesthesia for the past forty-nine years. "A study of the records of others who have done important clinical and experimental work, combined with ideas gained in personal research in spinal anesthesia, has caused me to separate the phenomena of anesthesia into their integral parts and to visualize these integral parts as definite units of total anesthesia. They are all independent entities, each with its characteristic actions and reactions, each one blocking nerves of totally different function and each bringing out a different type of reaction," writes the author of his work.

The author has endeavored to give the laws of affinity of analgesic and anesthetic drugs for nerve tissue, and to picture the anatomic divisions of the nervous system, together with their physiology and reaction to nerve block. He has also presented the various methods of producing analgesia and anesthesia and has given a technique which is popular, successful, and safe. Directions for preparing a patient for anesthesia and for operation and a sensible method of determining which anesthetic should be used are discussed at length.

The Trendelenburg position with its characteristic phenomena is compared to the late use of that position with its phenomena. This comparison brings out salient points which are valuable in regard to safety and also in regard to the height and duration of sensory and motor nerve block. Throughout this monograph motor block is thoroughly discussed, and the author's interpretation presupposes that it is just as imperative in abdominal surgery as is the accompanying sensory nerve block.

RUSH BIOGRAPHY

The first full biography of Dr. Benjamin Rush, distinguished physician and citizen of the Revolutionary period, is published this month by the University of Pennsylvania Press. The biography is written by Nathan G. Goodman.

The history of early American medicine is largely the record of Rush's life, for he was not only the greatest physician and most influential teacher of medicine in his day, but a pioneer in almost every field of medical science. He was one of the first advocates of preventive medicine and his ideas on diet, exercise, sanitation, mental health, the connection between decayed teeth and arthritis, were distinctly modern. He was the first American psychiatrist and the first formal professor of chemistry. He wrote the first book on mental diseases, considered a classic for 50 years, and the first chemistry text. He founded the first free dispensary in Philadelphia and the College of Physicians. In noting that mosquitoes were more prevalent during the devastating yellow fever epidemics in 1793 and the years following, he came near to discovering the great secret of contagion. His writings on every phase of medicine would make an appreciable library.

Rush was also an intense patriot and outstanding social reformer. His political activities included coöperation with Thomas Paine in publishing his *Common Sense*, service as physician-general of the middle department during the war, aid in drawing up the Declaration of Independence which bears his signature—the only M. D. on the list—and active promotion of the Constitution in 1787.

His contributions to social advancement included: founding of the first temperance and antislavery societies, first Sunday school system, and Dickinson College. He also advocated many reforms in public education and penal laws.

INFANTILE PARALYSIS

One theory regarding infantile paralysis, according to an article, "Waging War on 'Polio'," written by Stella Randolph for the September *Hygeia*, is that many persons have a slight attack of the disease without realizing it. Some of the results of study convince doctors that cases often show spontaneous recovery and, as is well known, no one who has had the disease is susceptible to it again.

PUBLIC HEALTH

SEROLOGIC PROCEDURE

Since the serologic conferences at Copenhagen and Montevideo, there has been an increased interest in the relative value of serologic tests for the diagnosis of syphilis. At these conferences the test of only one serologist of the United States was presented for consideration. There are a number of excellent serologists in this country, many of whom have described original modifications of the complement fixation and precipitation tests for syphilis. It is felt that the tests of these workers merit consideration.

The United States Public Health Service is coöperating with the American Society of Clinical Pathologists in the drafting of a plan to evaluate independently serologic procedure for the diagnosis of syphilis in this country. Briefly, the plan contemplates the collection of specimens of blood from at least 1,000 individuals and the distribution of comparable specimens to the laboratories of serologists who have described an original modification of a complement-fixation or precipitation test for the diagnosis of syphilis. The donors of the specimens will be carefully selected so as to measure both the specificity and sensitivity of the serologic procedure. The sending of specimens to workers at considerable distance from the point of collection will be expedited by the use of the most modern transportation facilities, while the delivery of specimens to nearby serologists will be delayed so as to make the delivery time approximate that for those workers at the more remote points.

A committee of five members consisting of two specialists in the field of clinical syphilology, two members of the American Society of Clinical Pathologists, and one officer of the United States Public Health Service will organize the plan of study and, after all laboratory reports have been submitted by participating serologists, will interpret the results on the basis of clinical findings. The collection of the specimens will begin about December 1, 1934, and a number of serologists will be invited to take part in the evaluation scheme.

It is possible that the name of some serologist who has described an original modification of a test for syphilis may have been inadvertently omitted.

Correspondence should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

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AUTARCEOLOGY OF POLIOMYELITIS*

A Study of the Recurrence of the Disease in the Same Family

By W. LLOYD AYCOCK, M. D.

THERE is evidence that infection with the virus of poliomyelitis is world-wide,[1 2 3 4 5 6] that a relatively large proportion of individuals become infected at some time and that the virus is disseminated more uniformly than would be inferred from cases of the disease alone. The prevalence of the paralytic disease caused by this virus varies in different regions, is limited in extent and appears to be selective. Studies relating to the varying frequency with which the disease results from exposure to the virus have suggested that autarceologic factors in the host, rather than circumstances of exposure to the virus itself, largely determine the occurrence of the paralytic disease[7]. The nature of autarceologic resistence is unknown. However, there are indications that it varies in different climates, in different individuals in the same locality, and probably in the same individual at different times[8]. Clinical studies point to some departure from the usual physical growth and development as an earmark of such susceptibility[9 7]. Other observations indicate that at times a local disturbance of the upper respiratory mucous membrane[10] or a temporary stress on the physiology may be the responsible factor. Epidemiologic studies suggest that autarceologic susceptibility may sometime run in a family[11]. This paper deals with observations concerning familial recurrence of the disease which are believed to be indicative of familial susceptibility.

The striking manner in which poliomyelitis sometimes runs through the several members of a whole family under apparently the same circumstances of exposure where only one member is usually attacked has long suggested a family tendency[12]; the simultaneous occurrence of the disease in child and parent is perhaps more suggestive. In 1925 Paul Eaton and I, in the course of a study of the interval between multiple cases of poliomyelitis in the same family[13] made some calculations (unpublished) on the probability of the occurrence of additional cases in families in which one or more cases had occurred. The results suggested that the probability of additional cases increased with the number of cases which had occurred. Because of the nature of the data and the method of calculation necessary for the varying family

*From the Department of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass., and the Vermont State Board of Health. Read before the W. Va. State Medical Association, Huntington, on May 15, 1934.

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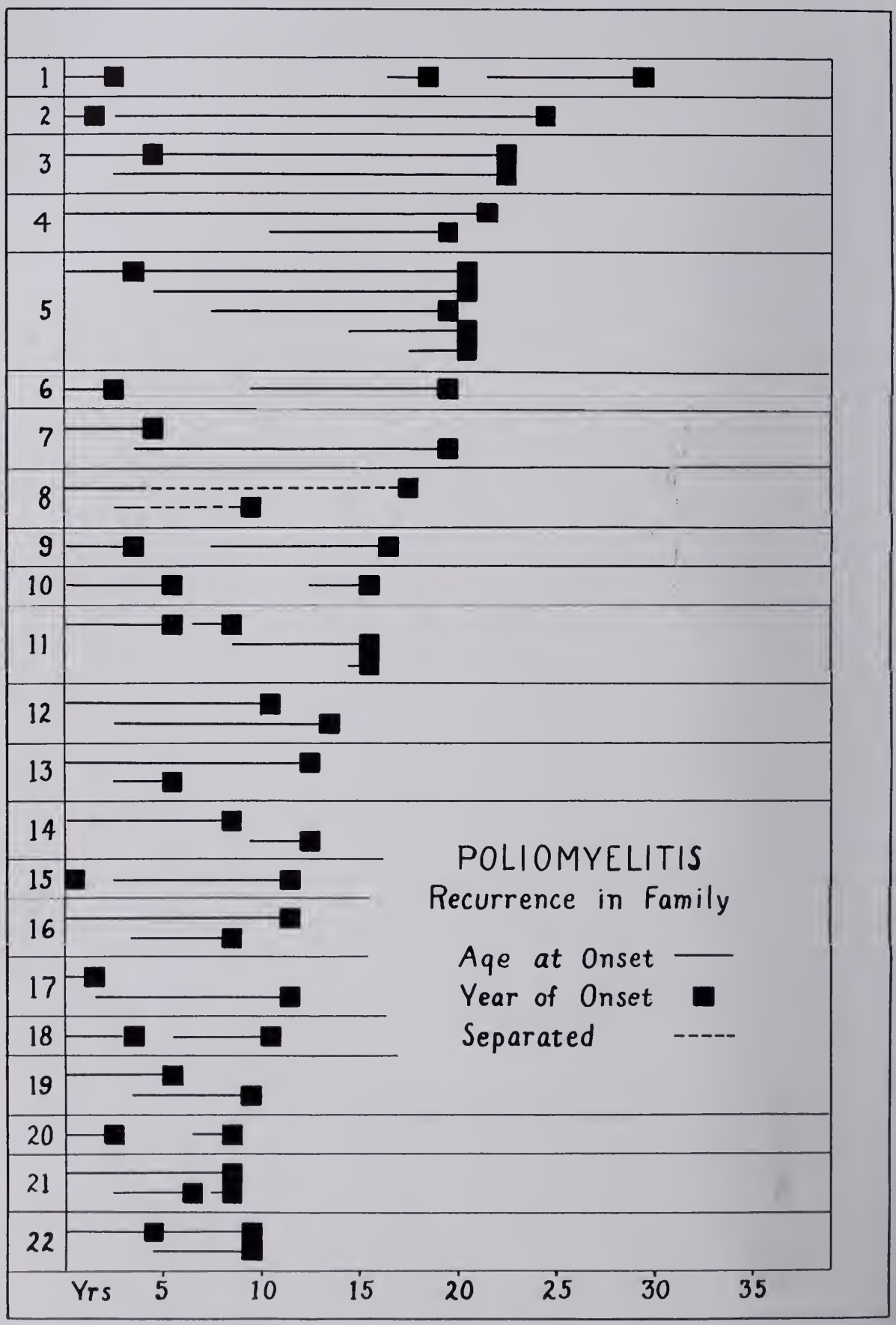
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population, no conclusions could be drawn, but a family tendency was suggested. Some unusual circumstance of exposure cannot, of course, be excluded as the explanation of such family outbreaks. The observations reported in this paper, however, cannot be accounted for by familial exposure. Furthermore, it would appear that they can hardly represent the operation of chance alone. They therefore suggest familial susceptibility.

The first of these observations relates to the recurrence of poliomyelitis in siblings of earlier cases. Because of the relatively low incidence of poliomyelitis and the irregularity with which the disease recurs in a given community, calculations as to the frequency with which the disease might be expected to recur in the same family would not be useful. However, it is believed that on the laws of chance it should be very exceptional. During the course of my observations I have been struck by the number of instances of the disease in a brother or sister of some patient whom I had seen in previous years, or where some older brother or sister of the patient seen during the acute stage of the disease had residual paralysis from an attack in earlier years[11]. In recent years I have collected 29 instances of this sort. As will be seen in Chart 1, showing 22 of these families where dates and ages are known, the majority of the later cases were not yet born when the earlier case occurred. Where the later case has lived in contact with the earlier case, chronic carriage of the virus on the part of the earlier case or some household circumstance might be considered as the determining factor in the recurrence of the disease. That it is not chronic carriage on the part of the older case is suggested first by the fact that there is little else in the epidemiology of poliomyelitis to indicate chronic carriage and is strikingly shown in many of the families where the earlier case was no longer in the home when the later case occurred. The possibility of some household circumstance would seem to be ruled out when we find that a number of these cases developed after they had left the home or the families had moved to new localities or even to other countries in the interim between cases. There is one instance (No. 8) of a family in which both the parents died while the children were infants. The two children were adopted in different localities and never saw each other again, yet each developed the disease at different times and in different places years after they had separated. These observations suggest an inherent susceptibility on the part of members of such families.

In this connection it might be mentioned that the recurrence of the disease in the same individual is rare. We have collected eight instances where the same individual has had two unmistakable attacks of poliomyelitis with paralysis. In four of these the disease also occurred in siblings of the patient, at the time of his second attack. Three of these where dates and ages are known (Nos. 3, 5, 22), are included in Chart I. Such occurrences, in view of the infrequency of the occurrence of multiple cases, might suggest some association between failure or inability to develop immunity following infection with the virus, and familial susceptibility.

The next series of observations is the occurrence of the disease in the children of a parent who had had the disease in childhood. While again chronic carriage might be thought of, such instances are more suggestive of hereditary susceptibility. Our data comprise 15 such instances.

If a family tendency is responsible for the disease sweeping through a family, or for the recurrence of cases, one would expect this tendency to hold in different generations according to some genetic law. However, such a tendency not being in itself recognizable, would become apparent only if and when those possessing it are subjected to an environmental factor, namely suitable exposure to the virus. Not all susceptible individuals have been suitably exposed to the virus. Hence it is evident that any tabula-

tion of cases of the disease in a family tree would constitute at best only a partial record of the susceptibles in that family. Bearing this in mind we see that plotting of cases from a genetic viewpoint will necessarily be imperfect as an indication of susceptibility to the extent to which suitable exposure has not taken place. Furthermore the period during which the disease has been systematically recognized and recorded (it was made a reportable disease only in 1912) has only recently become sufficiently prolonged to encounter, or even expect, satisfactory data regarding recurrence in the same family tree. The number of instances of this sort which we have observed as compared with the incidence of the disease in families of normal individuals, taken at random as propositi, would seem to indicate that in certain families the disease occurs more often than would be expected on the laws of chance, thus indicating a family tendency.

The data here reported relate to 682 cases of poliomyelitis in which an attempt has been made to ascertain the occurrence of the disease in relatives. It was often difficult to elicit the information desired. Questioning as to the occurrence of the disease in relatives was most often met with a prompt "No." Relationships were established only after the closest questioning concerning any lameness in relatives, combined with an intimate acquaintance extending over a period of years with persons who had had poliomyelitis in the same vicinity or even in more distant places. The interviews were sometimes exhausting though amusing; for example, one individual who insisted that he had described every lameness in relatives which was known to him gave me the maiden name of his mother—the same as that of a patient with poliomyelitis whom I had seen several years before in another part of the state. When asked if there was any relationship he exclaimed "That fellow didn't have infantile paralysis; his legs got paralyzed from riding around in an automobile all the time." He was a cousin. Grandmothers were often very helpful in completing the family histories.

In the course of the investigation many of the older explanations of paralysis were encountered—teething paralysis, sitting on a damp floor, being dropped when a baby, various diseases or drugs "settling" in a leg or arm, etc. It should be stated that cases have been included as poliomyelitis only where I have been convinced that they were paralytic cases of this disease. Many stories were encountered in these families which were excluded because of uncertainty as to the nature of the lameness described, or where the story suggested some other disease. Numbers of crippling disabilities were described as occurring, especially in earlier years, which were evidently the result of bone tuberculosis. In this inquiry there are three things that bear striking testimony as to the validity of the data relating to more or less remote cases. The first is the description given of the nature of the lameness in question. These descriptions obtained, of course, from a layman and often not based upon actual medical diagnosis, to the clinician are unmistakable descriptions of the after effect of poliomyelitis. In a number of instances the stories have been verified by examination of the individual which has revealed characteristic muscle and bone changes of old poliomyelitis. To the epidemiologist the striking frequency with which the time and place of occurrence of the disease has coincided with that of known outbreaks of the disease adds validity to the cases in Vermont, occurring in the summer and fall of 1894[11] were called meningitis. The age at which the disease has occurred in these histories conforms to the well known age distribution of poliomyelitis. Such a record, obtained to a considerable extent from the memory of individuals rather than from events which were recorded as they occurred, is, as I suppose would be the case with any genetic study conducted in this way, incomplete. This is indicated by the fact that, regardless of relationship or place of residence,

the number of instances of poliomyelitis in relatives diminishes with the time interval between the cases.

There are reasons for believing that poliomyelitis is not a new disease although family histories usually contain no record of the occurrence of the disease extending very far into the past. Families in which the circumstances strongly suggest the earlier occurrence of the disease, although it was never recognized or recorded as such, are illustrated in the three histories following:

Case 1: The family F. consisting of the father, mother and two sons. One of the sons developed poliomyelitis in 1929 at 11 years of age in Massachusetts. The family knew of no cases or anything that could be suspected as poliomyelitis on the father's side. The mother, one of ten children, related that her mother's sister always used a crutch for a paralyzed leg which she developed in Prince Edward Island in 1864, at eight years of age.

Case 2: The family S. consists of father, mother and one daughter who had poliomyelitis in 1922 at seven years of age, with severe paralysis. No other cases of poliomyelitis were known to have occurred on either side of the house but, according to a family legend, a witch had cast a spell on the patient's great grandmother, when she was a young woman, which withered her right hand. She is remembered by the family as wearing some sort of leather contraption on the hand, as they think, to aid in sewing. At the same time the witch cast a spell on a son of the great grandmother, then a boy of about nine years and "paralyzed him from the waist down." However, the family succeeded in getting hold of a book which the witch had used on the boy and burned it, so the spell was taken off the boy and he is said to have recovered in time. This happened sometime in the 1880's when the family lived near Paris, France. While it cannot, of course, be stated that these were cases of poliomyelitis, the story of the two cases, coupled with the report of the outbreak in Ste. Foye l' Argentiere, France, about the same time suggests that it is not improbable that they were.[15]

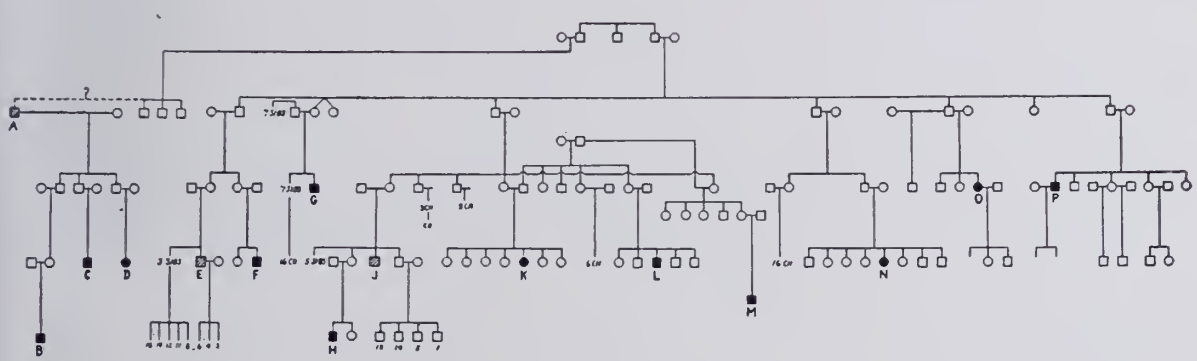

CHART NO. II, LaF. FAMILY

(A)—D. LaF. developed flaccid paralysis of the left leg in 1927 at 87 years of age. Symptoms were not of cerebral hemorrhage. (B)—W. M. had poliomyelitis in 1927 at 9 years of age in Bennington, Vermont. (C)—J. LaF. had poliomyelitis in 1927 at 32 years of age in Bennington, Vermont. (D)—A. LaF. had poliomyelitis in 1931 at 23 years of age in Quebec. (E)—S. D. had paralysis of the soft palate in 1894, in infancy, in Montreal, Canada. (F)—L. R. Diagnosed as encephalitis in 1922 at 21 years of age in Montreal. The attending physician relates manifestations characteristic of encephalitis lethargica. Later (onset indeterminate) developed marked flaccid paralysis of both arms and legs. Described by the family as progressive. Examination in 1934 revealed paralysis, atrophy and contractures indistinguishable from severe poliomyelitis. (G)—E. M. Paralyzed about 1896 in infancy in North Adams, Mass. (H)—R. F. had poliomyelitis in 1931 at four years of age in West Roxbury, Mass. (J)—P. Died of "meningitis" in 1898 at age of seven months in Montreal, Canada. (K)—M. G. had poliomyelitis at six months in Cambridge, Mass. (L)—G. A. had poliomyelitis in 1900 at about two years of age in Cambridge, Mass. (M)—L. M. had poliomyelitis in 1930 at 10 years of age in Cambridge, Mass. (N)—R. LaF. had poliomyelitis about 1911 at about three years of age in Providence, R. I. (O)—W. LaF. had poliomyelitis about 1894 at about one year of age in Troy, N. Y. (P)—J. LaF. had poliomyelitis about 1870 in infancy in Plattsburgh, N. Y.

Relationship between cases A, B, C, and D, and the remainder of the LaF. cases has not been definitely established. Since both lines trace back to the same locality and both often contain the same christian names, they are believed to be related.

Case 3: In 1931 the three F. children developed poliomyelitis, one bulbar and two with paralysis of the lower extremities. No cases were known on the father's side but the mother had two cousins who became crippled in Cherryfield, Maine, during the summer of 1896, at the ages of one and a half and 14 years. One of them spent the rest of his days in a wheel chair and the other was permanently lame. Although so far as Mrs. F. knows these two cases were not at the time or for that matter later diagnosed as poliomyelitis, the probability that they were is made strong by the fact that an outbreak of seven cases of poliomyelitis was reported as occurring in Cherryfield in 1896[12].

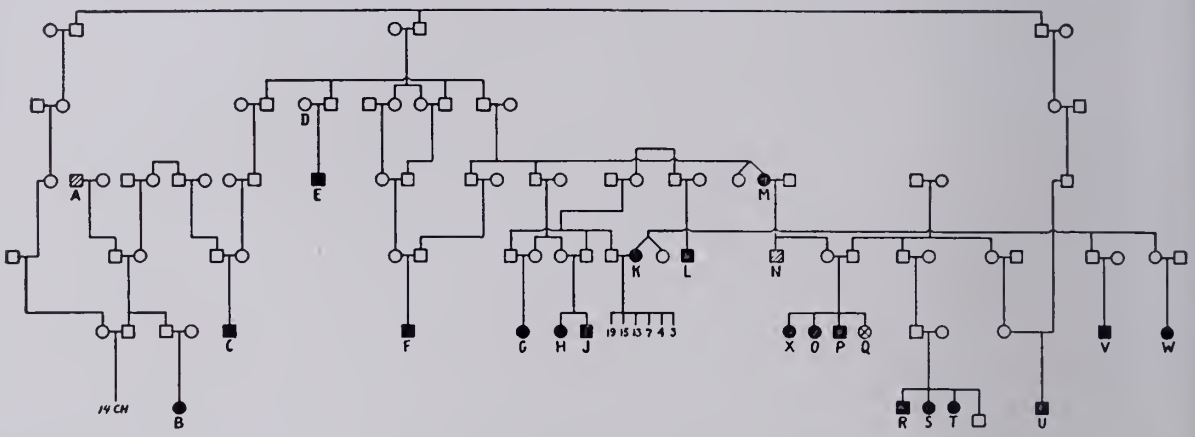

CHART NO. III, B. FAMILY

(A)—Chair cripple; called rheumatism. (B)—D. B. had poliomyelitis in 1921 at less than five years of age in Hinesburg, Vermont. (C)—J. R. had poliomyelitis in 1921 at 14 years of age in Grande Isle, Vermont. (D)—M. L. was crippled in one leg when a girl. Gait described suggests hip disease. (E)—H. B. both legs withered about 1882 at about eight years of age in Grande Isle, Vermont. (F)—R. B. had poliomyelitis in 1916 at three years of age in Grande Isle, Vermont. (G)—M. B. died of poliomyelitis in 1921 at one and one-half years of age in Grande Isle, Vermont. (H)—G. B. had poliomyelitis in 1916 at nine years of age in Grande Isle, Vermont. (J)—E. B. had poliomyelitis in 1916 at six years of age in Grande Isle, Vermont. (K)—O. M. B. had poliomyelitis in 1916 at 22 years of age in Grande Isle, Vermont. (L)—W. V. had poliomyelitis a number of years ago, in youth, in Northfield, Vermont. (M)—L. B. said to have had a shock a short time before her first child was born. Gait described indicated poliomyelitis. (N)—J. C. said to have been similarly paralyzed since birth. Lived to be 40—always lame. (O)—M. L. had poliomyelitis in 1916 at six years of age in Grande Isle, Vermont. (P)—S. L. died of poliomyelitis in 1916 at nine years of age in Grande Isle, Vermont. (Q)—Elizabeth questionable abortive poliomyelitis in 1916 in Grande Isle, Vermont. (R)—R. L. had poliomyelitis in 1916 at two years of age in Grande Isle, Vermont. (S)—E. L. had poliomyelitis in 1916 at five years of age in Grande Isle, Vermont. (T)—A. L. had poliomyelitis in 1916 at three years of age in Grande Isle, Vermont. (U)—E. V. had poliomyelitis in 1916 at five years of age in Grande Isle, Vermont. (V)—J. M. had poliomyelitis in 1923 at two years of age in Grande Isle, Vermont. (W)—B. M. died of poliomyelitis in 1912 at four years of age at St. Regis Falls, New York. (X)—E. L. had poliomyelitis in 1916 at six years of age at Grande Isle, Vermont.

This chart represents the linking of two families (case K) where poliomyelitis has been frequent. It should be noted that the offspring of such a union may not exhibit the disease.

The data concerning the occurrence of poliomyelitis in relatives of patients, other than members of the same household, comprise 222 cases who have had one or more relatives with poliomyelitis. One hundred and thirty-three of these take their origin in Massachusetts cases and 89 in Vermont cases. One hundred and fifty-seven of these represent 26.8 per cent of 586 serial cases. In Massachusetts, 76 or 17.7 per cent of 429 serial cases gave histories of poliomyelitis in relatives. While in Vermont 81 or 51.5 per cent of 157 serial cases gave similar histories. In Massachusetts there were 1.3 cases per family in those investigated serially while in the 133 families with more than one case the average occurrence was 2.8 cases per family. In Vermont there was an average of 2.2 cases per family investigated serially while the 89 families with more than one case had an average of 3.2 cases per family.

Several factors seemed to enter into the higher figure obtained in Vermont. First, many families still living in the "old home" with members of older generations seemed in general to have a more complete knowl-

edge of their relatives than persons residing in cities, many of whom had left their family seats. Second, personal acquaintance with patients with the disease in Vermont over a long period of years was helpful in bringing out the data. Third, in certain sections a relatively large number of cases seemed to be associated with the fact that relatively large numbers of persons in these localities were related. In one instance especially, doubtless due to the fact that the community was, in earlier years, inaccessible to transportation facilities for a good part of the year, a large proportion of the cases of the disease, over a period of years, occurred in a group of relatives in whom intermarriage was common[18]. As a sort of control, 100 individuals, chosen at random, none of whom had had poliomyelitis, were similarly questioned as to the occurrence of the disease. Only two of these reported the occurrence of single cases among their relatives.

Some of the family records which in themselves are strongly suggestive of an inherited family susceptibility are presented.

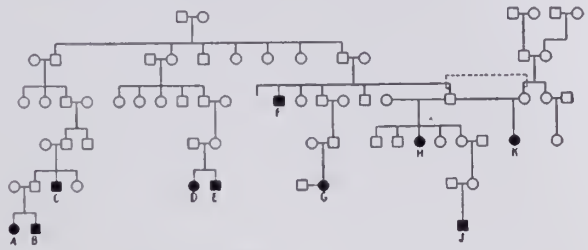

CHART NO. IV, T. FAMILY

(A)—G. T. had poliomyelitis in 1914 at 21 months of age in Enosburg Falls, Vermont. (B)—H. T. had poliomyelitis in 1914 at three years of age in Enosburg Falls, Vermont. (C)—F. T. had poliomyelitis in 1914 at 15 years of age in Enosburg Falls, Vermont. (D)—G. W. had poliomyelitis in 1914 at 16 years of age in Franklin, Vermont. (E)—L. W. had poliomyelitis in 1914 at 10 years of age in Franklin, Vermont. (F)—C. T. became lame in one leg in the teens and remained lame throughout life. (G)—O. T. W. has a curvature first noticed at about 12 years of age but supposed to follow an illness in 1894 at one year of age in Enosburg, Vermont. (H)—Question of poliomyelitis with some atrophy about 1870 at 10 years of age. (J)—A. McG. developed a limp about 1910 at about 12 years of age in Rockland, Massachusetts. (K)—L. T. had poliomyelitis in 1897 at seven years of age in Enosburg Falls, Vermont.

The mother and father of case K were related—exact relationship not known.

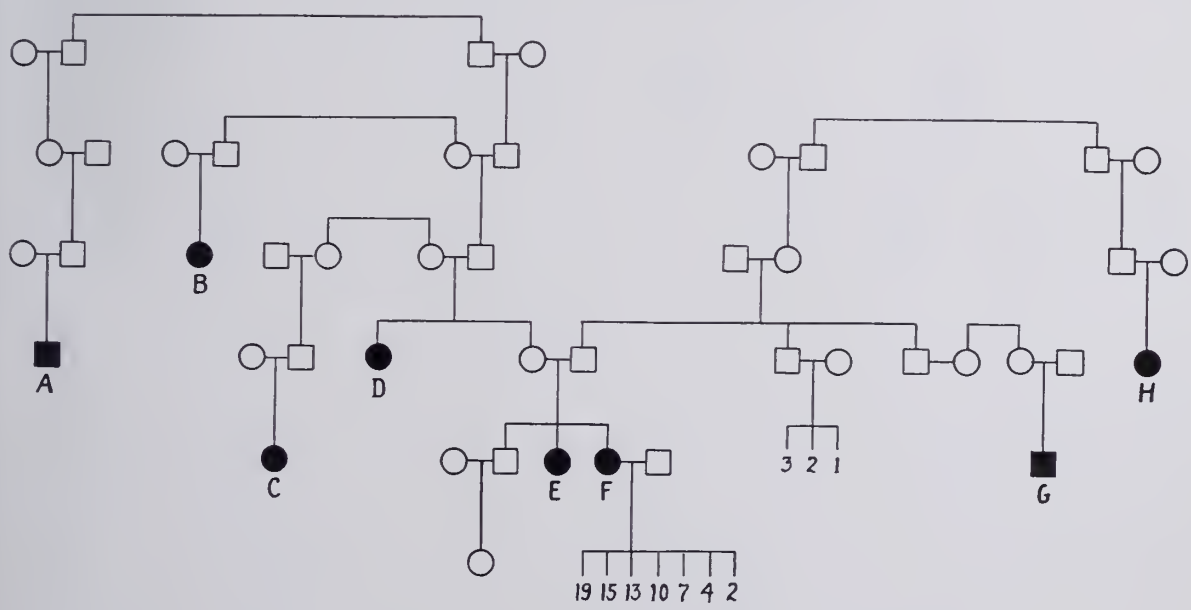

CHART NO. V, B. FAMILY

(A)—A. P. died of poliomyelitis at 15 or 16 years of age in 1894. (B)—A. B. died "of paralysis" at about 16 years of age about 1875 at Shrewsbury, Vermont. Was a wheel chair case. Onset about 1872. (C)—C. T. had poliomyelitis at 11 years in 1931 at St. Albans, Vermont. (D)—E. J. had poliomyelitis at 15 years in 1894 at Shrewsbury, Vermont. (E)—A. B. had poliomyelitis at three years in 1894 at Shrewsbury, Vermont. Weakness until six years of age. Knees "jacked". Hyperesthesia. (F)—U. B. P. had poliomyelitis at three months in 1894 at Shrewsbury, Vermont. Not in same house with (E). (G)—H. died of poliomyelitis in 1910 at Proctor, Vermont. (H)—A. P. had "sciatica" at 32 years of age in 1895 at Reading, Vermont. Could not move right leg except toe flexion. Has always limped. Right leg atrophied. Right arm also affected.

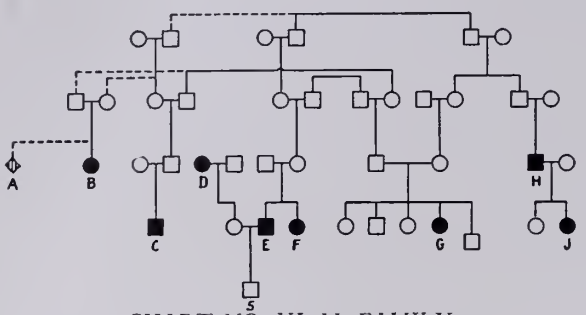

CHART NO. VI, M. FAMILY

(A)—L. said to have had poliomyelitis. (B)—Died of poliomyelitis a number of years ago in Bridport, Vermont. (C)—E. H. had poliomyelitis in 1933 at 24 years of age in Bridport, Vermont. (D)—J. F. had poliomyelitis in 1927 at about 40 years of age in Middlebury, Vermont. (E)—W. S. had poliomyelitis in 1927 at about 20 years of age in Middlebury, Vermont. (F)—I. S. had poliomyelitis in 1927 at 14 years of age in Middlebury, Vermont. (G)—D. M. had poliomyelitis in 1916 at 11 months of age in Bridport, Vermont. (H)—R. M. had poliomyelitis about 1894 as a child in Bridport, Vermont. (J)—V. M. had poliomyelitis in 1917 at two and one-half years of age in Montpelier, Vermont.

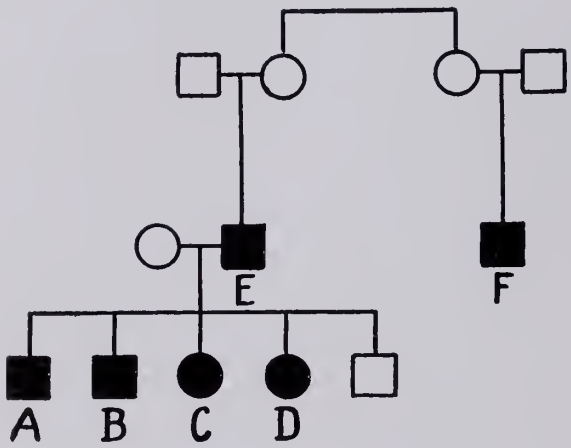

CHART NO. VII, M. FAMILY

(A)—F. M. had poliomyelitis in 1917 at 11 years of age in Waitsfield, Vermont. (B)—D. M. had poliomyelitis in 1917 at 10 years of age in Waitsfield, Vermont. (C)—M. .M. had poliomyelitis in 1917 at eight years of age in Waitsfield. Vermont. (D)—I. M. had poliomyelitis in 1917 at four years of age in Waitsfield, Vermont. (E)—W. H. M. had what the doctors called "rheumatic fever" in 1873 at three years of age in Waitsfield, Vermont. "Heard the doctors say that his leg was so sore he could not stand the touch of the sheets," resulting in lameness which gradually got some better. Remembers having cramps in that leg. Permanent lameness. Leg is shorter. Cannot extend foot. Leg is smaller—marked atrophy of thigh. (F)—T. H. had poliomyelitis about 1871 at about five years of age at Waterbury, Vermont.

From the nature of the case and of the data no attempt can be made at analysis of the Mendelian ratios involved in family susceptibility to poliomyelitis. In the first place the frequency with which individuals possessing such a susceptibility actually contract the paralytic disease is unknown. There are reasons for believing that this varies with a number of factors as, for example, season[17], as has been demonstrated in experimental infections by Webster[8]. Hence only an unknown proportion of susceptibles have revealed their susceptibility by the actual development of the paralytic disease. In the second place the study has not included all members of a family, usually only those necessary to established relationship between

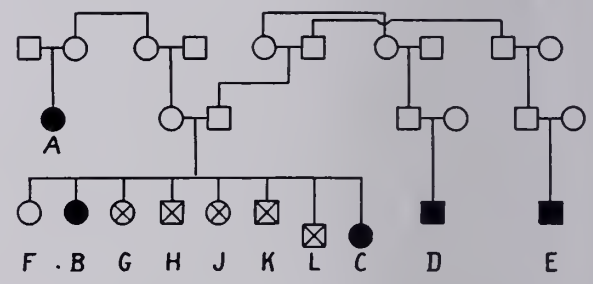

CHART NO. VIII, W. FAMILY

(A)—Had poliomyelitis with permanent crippling about 1908. (B)—L. W. died of respiratory paralysis in 1916 at eight years of age in Elmer, New Jersey. (C)—C. W. died of respiratory paralysis in 1931 at 13 years of age. (D)—Had poliomyelitis. (E)—Had poliomyelitis. Dates and ages not known. (F)—Died of cholera infantum in 1922 at the age of 10 months. (G)—H. W. taken sick six or seven days after (B) in 1916 at the age of 5 years. Critically ill for a few days but recovered without appreciable paralysis at any time. (H)—H. W. taken sick six or seven days after (B) in 1916 at the age of two years. Same story as (G). (J)—E. W. had abortive poliomyelitis in 1916 at seven years of age. (K)—S. W. had abortive poliomyelitis in 1916 at one year of age. (L)—R. W. had abortive poliomyelitis in 1931 at four years of age.

Note that cases (L) and (C) are children who were not yet born when the disease had last occurred in the family in 1916.

cases being recorded. However, this study indicates that poliomyelitis occurs with a much higher frequency among the relatives of persons who have had the disease than among persons taken at random. In view of the obvious discrepancies in a study of this sort, this study is suggestive of a genetic relationship in the autarceology of poliomyelitis.

Incidentally the number of histories obtained where stories indicative of poliomyelitis in Massachusetts, Vermont, Nova Scotia and New Brunswick in the early 1870's sug-

gest that these must have been years of unusual prevalence of the disease[18, 19].

Reference is made to the work of Webster[20] as affording experimental examples of resistance or susceptibility such as is indicated in poliomyelitis by this study.

QUESTIONS AND ANSWERS

(ABSTRACTED)

Q. Where do you get convalescent serum?

A. Convalescent serum is obtained from persons who have had the disease.

Q. What about the occurrence of poliomyelitis following tonsillectomy?

A. In 1927 we had 1189 cases in Massachusetts, and 15 had had tonsils removed seven to 14 days before the onset. I would not have my tonsils taken out in the midst of a lively outbreak of poliomyelitis.

Q. Do diseased tonsils predispose to the disease?

A. Statistically, the tonsil status of patients with poliomyelitis seems to be exactly the same as the tonsil status of normal children of corresponding ages.

Q. Is it advisable to close the schools during an epidemic?

A. There is no statistical evidence to show that the opening or closing of schools influences the curve of the disease.

Q. What is the most uniformly constant diagnostic lead you get from the parents?

A. The most suggestive thing you get out of the parents is that the child looks sicker than he ought to. The mother will tell you that the temperature is 100 with a slight headache and that the child vomited just once, but "he looks sicker than he ought to." And the child looks that way to you. He has a sort of apprehensive, alarmed look; he is a little expectant and he seems to know that something unusual is happening.

Q. What about the use of the nasal sprays?

A. On the whole, I don't believe it is to be recommended.

Q. When should a lumbar puncture be done?

A. In deciding whether to do a lumbar puncture, the picture of the stiff neck comes as near as anything else to being the criterion. If you do not get the stiff neck there would not be any cells if you did a lumbar puncture; if you do get the stiff neck and you do not find cells there won't be any paralysis. You will not miss many cases of poliomyelitis by following that.

Q. Is there such a thing as sporadic cases.

A. Yes.

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FIRST EYE EXAMINATION

It would prove of immense benefit to the people as a whole if every one's eyes were examined at certain stated periods of life, aside from any special need for examination at other times, Dr. Hyman Cohen believes. The fourth chapter of his book on the eyes appears in the October *Hygeia* under the title "The Eye Has Its Troubles: Optical Defects." Consistently applied, such a system would prove the greatest single measure for sight conservation.

The first period that he advocates for routine examination is at the age of four years. This is the age of first full consciousness, when the child's eyes dart from one object to another, and these first visual impressions often prove lasting. The second routine examination of all eyes should be made at 14 years. At this age the child is in the midst of the active period of growth, of the profound changes incident to puberty, and the eyes do not escape these changes. The beginning of the bread-winning period calls for another examination, for the eyes are now subjected to new and prolonged strain varying with the occupation and the working environment. Forty-five is the age of vital change in the body as a whole, and of vital and decided changes in the eyes. The help of glasses is usually needed, and at this age, too, an examination of the eyes often shows evidence of disease and weak spots elsewhere in the body.

AGRANULOCYTIC ANGINA: REPORT OF CASES*

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THE clinical entity now commonly designated agranulocytic angina was first described by Turk[1] in 1907. Pepper[2] has pointed out, no doubt correctly, that "putrid sore throat," as seen and described by the laryngologists of the last century, probably represented this condition. Describing a syndrome of progressive oral sepsis of severe degree, marked prostration and neutropenia, Schultz[3] in 1922 supplied the term agranulocytic angina. Friedeman[4] reported cases of a similar symptom-complex and used the term "agranulocytosis." Schilling[5] suggested "malignant neutropenia." More than a decade of intensive study has followed Schultz's description, so that at the present time this acute emergency rarely escapes detection.

The cause of the disease is unknown. A plausable explanation is a deficiency factor for the maturation of granulocytes and their delivery to the circulation analogous to a deficiency factor in pernicious anemia and supplied by liver extract in that disease. Having a life cycle of only five days, the rate of growth of granulocytes which keeps pace with physiologic degeneration is tremendous, and these cells constituting the main defense against bacterial attack, any serious impairment of the mechanism of their growth and delivery is necessarily followed by most disturbing results. The occurrence of a neutropenic emergency in the course of overwhelming infection suggests a toxic process as the primary agent of granulopoiesis paralysis. A defensive overproduction of granulocytes is the rule certainly in most infections, and more recent investigation shows that there is some yet unknown factor responsible for probably all neutropenic cases. Patients thus have been observed[6] from the beginning of an acute attack and through a clear interval into a relapse, in which daily blood counts are made and the important observation noted that the characteristic blood picture preceded by a definite time the clinical onset and sepsis syndrome. The drop in granulocytes uniformly preceded the clinical onset by three or four days and pointed conclusively therefore to a primary and not yet explained bone marrow deficiency, the sepsis being secondary and the result of the consequent destroyed defense mechanism.

The tendency of the disease to occur far more frequently in women has stimulated investigation of any correlation between the disease and physiologic function peculiar to sex. Thompson[7] recently studied forty cases and reported a "possible temporal correlation between the onset of neutropenia and the onset of menstruation." Thirty-five of the forty cases studied occurred in women and twenty-five were less than forty-five years old, or within the menstrual age. By reason of incomplete histories and other factors, there were eighteen cases where the correlation in question could be studied, and in seventeen of the eighteen cases the onset of subjective symptoms of granulocytopenia occurred within one or two days of the regular menstrual period. In six cases of the series one or more relapses were observed, and in each instance the relapse was coincident with a menstrual period. Two young women who had recovered from typical attacks of agranulocytic angina were followed, with frequent blood counts through a menstrual cycle, and the two individuals showed a definite neutropenia four or five days before the onset of

*Read before Section on Internal Medicine at Huntington, May 14, 1934.

menstruation, without subjective symptoms.

The ability to lower the white cell level by the administration of benzene is a fact well known for years, and Madison and Squier[8], noting the paralleled increased incidence of agranulocytosis and the increase in use of drugs containing a barbiturate combined with amidopyrene, reported recently a series of thirteen consecutive cases, in which all the patients had taken, over varying periods of time prior to the onset of neutropenic attacks, one or more drugs containing benzene ring derivatives. Other evidence was supplied showing further relationship between benzene ring derivatives and the neutropenic state. Exhibiting a similar drug sensitivity, Farley[9] collected records of thirty-nine cases and reported seven additional cases of "depressed bone marrow function" resembling agranulocytosis following the administration of arsphenamine.

The diagnosis of a full flown neutropenic attack is extremely easy if one is on the alert for the unusual and a white cell count is not overlooked. The blood stream onset, for obvious reasons, is rarely recognized. The onset of the clinical phase is abrupt with fever varying from 101 to 105 and prostration which is extreme. Sepsis is usually present with the onset of illness, or follows almost at once. With the main defense mechanism destroyed, the mouth and throat are vulnerable sites for bacterial attack, and ulceration and necrosis occur usually in a severe degree. There is frequently a history of a recent tooth extraction. Infective processes may and do occur sometimes at any site. The tissue reaction about the ulceration is slight, and regional lymph nodes are swollen and tender in only half the cases. The blood picture is distinctly diagnostic. The total white cell count is 2000 or less and the granulocytes constitute a very small per cent of the total and are often absent altogether.

The foregoing description applies to the acute neutropenic emergency. The production and delivery of granulocytes alone is at fault. Far more cases are observed in which there is a striking but less spectacular neutropenia occurring along with the depression of other elements of bone marrow. Acute aplastic anemia, acute leukemia, and the purpuras often present such pictures.

That a chronic condition exists in which there is a relative neutropenia without outspoken sepsis has been the subject of some investigation. Roberts and Kracke[10] made statistical studies of records of leucocyte and differential counts in eight thousand ambulatory patients between 1920 and 1930 and found a little more than one in every four such patients to be mildly neutropenic, the count ranging from four thousand down to one thousand. One of each two women between the ages of 40 and 60 was neutropenic. The complaints of weakness, exhaustion and fatigue were twice as frequent in the neutropenic patients as in those showing a normal white cell level, and the severity of symptoms was in striking proportion to the degree of neutropenia found.

The principal agents resorted to in the treatment of the acute neutropenic state have been (1) blood transfusions, (2) irradiation, (3) liver extract, and (4) nucleotide therapy.

The condition presenting as it does a dramatic challenge, blood transfusions, so often a last resort, have been given frequently. Their use is entirely empirical, since there is no evidence whatever to support any claim of a granulopoietic effect, unless possibly the trifling amount of nucleotides contained in the transfused blood may have some such effect. In practice it is a frequent observation to find the white cell level actually lowered after a transfusion. Cases nevertheless treated by blood transfusions show to the credit of this plan of therapy a mortality rate of 64 per cent against a mortality rate of more than 90 per cent in the untreated cases[11].

X-ray exposures of long bones have been given on the purely theoretical supposition that small doses stimulate rather than depress bone marrow activity. Bone marrow is extremely radiosensitive, and there is an

element of danger requiring extreme caution in this plan of attack, since there is a great uncertainty if there is any stimulating dose without a later depressing effect. Cases treated by irradiation are credited with a mortality rate of 53 per cent[11].

Prompted by its spectacular control of pernicious anemia and in a measure also by the frequently associated relative neutropenia in that disease, liver extract, especially since its intravenous and intramuscular administration has been made possible, has constituted a therapeutic attempt, often successful, in the control of various neutropenic states. Foran and others[12] reported five cases of agranulocytic angina conforming to the Schultz syndrome, in which remissions followed in all five cases after intravenous and intramuscular administration of liver. In four of the cases the leucocytic increase had a striking resemblance to the reticulocyte rise in pernicious anemia. Doan[13], an outstanding student of the neutropenic state, is moderate in his evaluation of liver as a therapeutic agent in this disease and states that "in certain cases of chronic, non-infectious, deficiency neutropenia with a concomitant moderate degree of secondary anemia and thrombopenia, intravenous liver extract has controlled the levels of all three bone marrow elements."

The most encouraging phase of treatment is the promise of specific therapy in nucleic acid derivatives. Almost from its discovery by Altmann[14] in 1887 nucleic acid has been experimented with as a substance capable of raising the leucocyte level. Metchnikoff[15] in 1892 emphasized the "phagocytic power" of polymorphonuclear leucocytes to destroy bacteria and stimulated the search for a substance which would increase the number of these "phagocytes." Ames and Huntley[16] in 1897 studied the apparent production of leucocytosis by nucleic acid and found an increase in the leucocyte count and noted at the same time an increase in the production of young cells. They suggested that the presence of the young cells represented a direct effect of the nucleic acid on bone marrow. Hebetin[17] in 1932 used sodium nucleinate as a bone marrow test and reported in healthy individuals an increase of 40 to 60 per cent of white cells. In their experiments on rabbits, Doan and his co-workers[18] in 1927 proved of unquestionable marrow origin the definite leucocytosis which followed the intravenous injection of relatively large doses of sodium nucleinate. The undesirable leucopenia preceding the leucocytosis in the experiments with sodium nucleinate led to other experiments in which the "active principle" affecting myeloid foci was sought in some of the degradation products of nucleic acid, notably adenine and guanine. These products gave an immediate neutrophilic response without preliminary leucopenia and were immediately suggested as curative agents in any condition where a rise in the leucocyte level was imperative or desirable. Thus, Reznikoff[19] made the first clinical application based on the experiments of Doan and his co-workers by using adenine and guanine in four cases of agranulocytic angina, three of the cases recovering. Treatment with nucleic acid derivatives was carried out on a relatively extensive scale by Jackson and his associates[20], who reported in 1931 twenty cases of malignant neutropenia treated with pentose nucleotide. Thirteen of the cases were typical of agranulocytic angina, five were malignant neutropenias associated with severe infections, and two cases had chronic benzene poisoning. Five of the cases designated agranulocytic angina and one of the benzene poisoning died, giving a mortality of 30 per cent. In a later collected group of fifty-four typical cases[21], all receiving pentose nucleotide, the same mortality rate, relatively low for this disease, was maintained. It was furthermore observed in Jackson's cases that the approximate date of recovery could be predicted from the beginning of treatment and that, irrespective of how long the patient had had the disease, clinical and hemotalogical response took place on the fifth day of treatment. The pentose nucleotide (K-96) of Jackson is now prepared on a commercial

scale and is available in solution in 10 c.c. vials.*

We are reporting three cases of agranulocytic angina coming under our observation in the last two years and conforming to the syndrome described by Schultz.

Case 1: A woman 28 years old was admitted to hospital March 8, 1932, with violent sepsis of mouth and throat. Her family and past history was normal. She had been married six months and had not become pregnant. In October, 1931, five months before the present attack, she had a sore mouth and sore throat a few days after a menstrual period. She was a great deal prostrated and was ill ten days. She was treated symptomatically at home. No blood count was made. After she was over this attack an abscessed tooth was extracted. She had been sick two weeks when she entered the hospital in her severe attack. The onset of this was with ulceration and necrosis of mouth and throat, as in the former attack, and this attack also came on a few days after a regular menstrual period. In both of the attacks there was a recurrence of some menstrual flow after the onset of illness. The course of the second severe attack is featured in Table I. She received blood transfusions, x-ray exposures of long bones, and liver intramuscularly. Her temperature reached normal on the ninth day of treatment, and at this time her white blood count was quite creditable, and ulcerations were clearing up rapidly. She had recovered completely from her attack on discharge from hospital March 30. She had subsequently three normal menstrual periods without manifest illness, and then she went through a pregnancy and was delivered March 17, 1933. She was entirely well through this pregnancy and subsequently has had no clinical evidence of disease. A white cell count made on March 9, 1934, two days before the onset of a menstrual period, showed a total count of 3,950, granulocytes 16% or a total of 632.

Case 2: A woman, age 56, was admitted to hospital August 18, 1932, with a diagnosis already made by her family doctor of agranulocytic angina. Her past health had been good. Her tonsils had been removed six years before. She had been married fifteen years and had had two pregnancies, one terminating in miscarriage and one going to term with a living child which died in infancy. She had gone through the menopause eight years before. For three months immediately preceding her last illness she had had recurrent sore throats of short duration and some nasal "catarrh." One week before admission to hospital she became ill with a sore throat, sore mouth and fever with marked prostration. She was extremely ill when first seen at the hospital. The nose and submaxillary regions were swollen, painful and of a purplish red color. All teeth had been extracted (years ago); there were superficial necrotic areas on the gums and tongue and also on the hard and soft palate. A small superficial abscess to one side of the anus had been incised. Temperature was 102.4, pulse 80. The total white cell count was 200 with a complete absence of granulocytes. Hemoglobin was 65 and red cells 3,110,000. Four hundred and fifty c.c. of whole blood was given at once and another 300 c.c. the following morning. The extreme restlessness of the patient, evident on entrance, persisted, temperature went up to 105 or 106, and death occurred in less than twenty-four hours after admission to hospital.

Case 3: A large muscular man, age 42, was admitted to hospital November 13, 1933. He had had exceptionally good health. On November 3, or ten days before seen at the hospital, he had had a lower central incisor extracted. The gum failed to heal and became ulcerated and necrotic. A few days later he developed a sore throat. On entrance to hospital he was extremely sick and was barely able to sit up to answer a few questions and submit to a preliminary examination. The gum about the socket of the recently extracted tooth was necrotic and there were numerous ulcerations inside the mouth. The throat was intensely red and the left tonsil, its face covered with a thin membrane, was of such a size that a peritonsillar abscess had been suspected. Necrotic areas were present on the back of the neck and left forearm. The temperature was 101.2 and pulse 118. Only one heart sound was audible. The blood picture was that of an acute neutropenia. The case was treated primarily by pentnucleotide administered intramuscularly. Blood transfusion and liver were given as adjuncts. The course of the case is given in detail in Table 2. Clinical improvement was very decided by the fifth day of treatment, although the blood picture response was not absolutely convincing until the eleventh day. The leucocyte level could be definitely elevated by large doses of pentnucleotide. The reactions following nucleotide administration were severe and resembled

*Marketed under the trade name of Pentnucleotide by Smith, Kline and French.

angina. In spite of an apparent clinical recovery from the acute neutropenia on the fifth or sixth day of treatment, a secondary anemia and a pronounced tachycardia persisted throughout the stay in hospital to December 7. The first eosinophiles were noted in the blood on January 19 and on March 20 they were three per cent. Almost a normal blood picture was restored by this time, and tonsillectomy was done two days later with a normal convalescence and with no effect on the blood picture. The patient was apparently well and was allowed to resume his occupation as a mine superintendent on April 11.

TABLE I

TABULATION OF BLOOD COUNTS, TEMP. & TREATMENT AGRANU LOCYTIC ANGINA (CASE I)

DATE	BLOOD PICTURE					TEMP.	TREATMENT			COMMENT
	% Hb.	Total RBC	Total WBC	% Neut.	Total Neut.	Max.	X-rays Ert. Dose	Blood c.c.	Liver Thrp.	
3- 8-32	65	4,480,000	2,200	0	0	102		400		Violent sepsis of the
3- 9-32	75		1,800	6	108	105		250		mouth and throat.
3-10-32	90	5,480,000	1,250	13	162	103		250		Looked moribund.
3-11-32			1,300	14	182	103		250		
3-12-32			2,000	14	280	101		270	2 c.c.	
3-13-32						103	1/20	200	2 c.c.	
3-14-32	98		3,000	29	870	101		200	2 c.c.	
3-15-32			4,000	39	1,560	100			2 c.c.	
3-16-32			5,050	57	2,878	**101**			2 c.c.	
3-17-32			7,500	45	3,375	Normal	1/20			
3-18-32			6,200	42	2,604	Normal				All local ulcerations
3-19-32			6,150	52	3,188	Normal				clearing up rapidly.
3-20-32			7,800	68	5,304	Normal				
3-21-32			8,050	55	4,427	Normal				
3-22-32			10,000	59	5,900	Normal				
3-23-32			8,500	60	5,100	Normal			6	
3-24-32			6,950	43	2,988	Normal			6	
3-25-32			8,600	47	4,042	Normal			6	
3-26-32			9,500	69	6,105	Normal			6	
3-27-32						Normal			6	
3-28-32			11,200	66	7,392	Normal			6	
3-29-32			8,000	56	4,480	Normal			6	Discharged. Appar-
3-30-32			7,700	57	5,789	Normal			6	ently Recovered.
4-16-32	84	4,900,000	7,600	19	1,444					
4-22-32	80	5,200,000	6,900	36	2,484					
4-30-32			9,000	53	4,770					
7-13-32	98	5,220,000	6,100	34	2,074					

Lilly 343

Amp. Ext. Oral

Patient remained clinically well and went through a normal pregnancy terminating March 17, 1933. Blood count on March 9, 1934, **two days before onset of a menstrual period**, showed WBC 3,950, granulocytes 16% or total granulocytes of 632.

SUMMARY

(1) The cause of agranulocytic angina is not known. It occurs in the course of certain apparently overwhelming infections. It has been clearly demonstrated, however, that the blood picture may precede the clinical onset and sepsis syndrome, and a primary and not yet explained bone marrow deficiency in all cases is suggested. The condition occurs principally in women and more frequently within the menstrual age, and in some cases the correlation between the disease and menstruation is certain. Benzene ring derivatives and various preparations of arsenic are apparently capable of producing the disease. Nucleic acid derivatives represent the most effective type of therapy. The emergency, however, is always dramatic, and blood transfusions and parenteral liver will continue to be used as therapeutic adjuncts in some cases at some stage of the disease.

(2) Three cases of agranulocytic angina are reported, all three conforming to the original Schultz syndrome.

(3) Case 1 is the recurring type, and spontaneous recovery followed in what was apparently a milder attack of the disease. There was a definite correlation between the disease and menstruation. Recovery followed blood transfusions, x-ray of long bones, and liver therapy.

(4) Case 2 was rapidly fatal. There was clinical evidence suggesting a low level of granulocytes three months before the onset of agranulocytosis which became com-

TABLE II

TABULATIONS OF BLOOD COUNTS AND TREATMENT IN AGRANULOCYTIC ANGINA (CASE III)

DATE	BLOOD PICTURE					TREATMENT			COMMENT
	% Hb.	Total RBC	Total WBC	% Neut.	Total Neut.	N-Tide c.c.	Blood c.c.	Liver Thrp.	
11-13-33			1,900	18	342	10			Sepsis (ulceration and necrosis mouth, throat, post cervical region and left forearm). Temperature, Marked prostration.
11-14-33	54	3,100,000	1,750	11	192	20			
11-15-33			2,225	12	267	20			
11-16-33	56		1,700	19	323	20			
11-17-33			1,825	18	328	20			
11-18-33			2,300	30	690	20			
11-19-33			1,975	24	474	30			Temperature normal. Definite clinical improvement. All ulcerations clearing up.
11-20-33	50	2,220,000	2,675	29	776	20	500		
11-21-33			1,800	43	774	10			
11-22-33			1,400	54	756	20		2 c.c.	
11-23-33	50	2,890,000	1,725	27	466	40	400	2 c.c.	
11-24-33			3,175	46	1,460	10		2 c.c.	
11-25-33	59	3,100,000	2,925	36	1,053	10	400	2 c.c.	
11-26-33			2,675	43	1,150	20		2 c.c.	
11-27-33	66	3,920,000	3,350	42	1,407	20		2 c.c.	
11-28-33			3,450	29	1,000	10			
11-29-33						10			
11-30-33			3,800	38	1,444	10			
12- 1-33			5,100	35	1,785	10			
12- 2-33			5,875	35	2,006				
12- 3-33			4,725	42	1,984				
12- 4-33	68	3,650,000	5,875	44	2,585				
12- 5-33			6,325	59	3,732				
12- 6-33			5,550	64	3,552				
12- 7-33			6,950	64	4,448				Discharged from hospital. Clinically well except sec. anemia, tachycardia, and weight loss — 143 pounds (normal 175).
12-11-33	63	4,570,000	10,600	47	4,982				
12-15-33	67		11,400	61	6,954				
12-23-33	58	2,970,000	8,100	55	4,455				
1-12-34	60	3,350,000	9,500	54	5,130				
1-19-34	65	3,630,000	8,000	38	3,040				2 eosino. in blood smear.
2-15-34	71	3,610,000	6,700	63	4,221				
3- 5-34	75	3,540,000	8,600	34	2,924				
3-20-34	85	4,530,000	10,550	49	5,270				3% Eosino.
3-22-34									Tonsillectomy. Lg. adh. ton.
3-24-34			8,700	46	4,002				7% Eosino.
3-27-34			10,000	54	5,400				4% Eosino.
4-11-34	86	4,800,000	10,300	52	5,356				Disc. to employment. Clinically well. Weight 190. Pulse 90-100.

Lilly 343

Liver cocktails. Extra. Iron, etc.

plete. The disease occurred in a woman eight years past the menopause.

(5) Case 3 occurred in a man and was the only case where nucleotide therapy was available. Only moderate doses were given. Clinical improvement was definite on the fifth day of treatment, although the blood picture response was not convincing for several more days. It was demonstrated that exceptionally large doses did raise the leucocyte level. Blood transfusions and liver were also a part of the therapy. Reactions following nucleotide administration were severe and resembled angina pectoris. A secondary anemia and tachycardia persisted for weeks. Recovery finally was apparently complete.

Discussion:

Dr. S. L. Cherry (Clarksburg): Agranulocytic angina is one of those diseases which has come up in the last decade to make up, more or less, for some of the diseases that have died out. I have heard a great many physicians decry the fact that some of the diseases they treated at one time are now rare or easily diagnosed or of no importance from the medical standpoint, but we are gradually coming to find newer and much more interesting problems than we used to have in the olden days. Diseases of this kind are much better to study from a scientific standpoint than typhoid fever, for instance.

The most important phase of this disease from the medical standpoint is its name—agranulocytic angina. It naturally brings up the question in the doctor's mind of when he should call a low count an agranulocytosis. I have always felt that in any of these counts we should have not only the numerical count, but a Schilling classification of those leukocytes which are found in the blood. If there are only 1000 white cells in the total count, the case should be studied very carefully to classify those leukocytes which are present in the blood, to see whether they are abnormal in numbers or in their shape, and to find some idea of where they are derived from.

There is a dividing line between a low white count and an agranulocytosis. We all know that a very severe case of typhoid fever can show a very low count, almost an agranulocytosis, down to 3000 or 4000 or less. We know that after some cases of arsphenamine over-dosage we can have a very low white count. We also find very low counts in so-called leukemic anemias, especially of the monocytic type. It is very important to study these cases and not only to do the count but to try to classify the various white cells.

We have had several of these cases that have died; however, they have left us with some very peculiar data. I recall one case of a boy of eight who had an agranulocytosis who developed a mastoid which was opened and from the wound there was never any pus; we got a pure culture of the pneumococcus but no pus. The boy died of a meningitis and the spinal fluid was very cloudy, but there was not a pus cell in the fluid.

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FRACTURES OF THE SPINAL COLUMN*

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THE purpose of this paper is:—(1) to describe what the authors consider the best method of reducing a fracture or fracture-dislocation of one or more vertebra; (2) to classify the clinical syndromes due to intramedullary spinal cord hemorrhage; and (3) to point out the indications for and against laminectomy in cases of injury to the spinal cord.

The study is based on an analysis of 144 cases of fracture or fracture-dislocation of the vertebral body and seven cases of injury to the spinal cord without demonstrable damage to the spinal column. These 151 cases cases will be presented in three groups—one group comprising 85 instances of fracture or fracture-subluxation of one or more vertebral bodies without damage to the spinal cord or spinal nerve roots; a second group, numbering 61 cases of fracture of the vertebral body with associated injury of nerve tissue, and a third group of seven cases in which there was damage to the spinal cord or cauda equina without clinical or röentgenological evidence to indicate a fracture or dislocation of the spinal column.

GROUP I

Uncomplicated Fractures or Fracture-Dislocations of the Spinal Column: Although a fracture of the vertebral column may be strongly suggested, the presence of such a lesion cannot be positively determined from physical examination alone, unless a palpable deformity is present. It seems futile therefore, to enter into lengthy discussions concerning the physical findings in cases of fracture of the vertebral bodies in which damage to the nerve tissue does not indicate the level of the lesion. The x-ray is almost universally available and infinitely more accurate than any other means of examination, so in any instance where there has been trauma, direct or indirect, to the spinal column, followed by complaints suggesting a deep-seated lesion, careful examination of the part by x-ray is absolutely essential. Once the presence of a fracture of a vertebral body, with or without associated subluxation, has been established and damage of the nerve tissue within the vertebral canal has been excluded, the question of the proper form of treatment must be settled for each individual case. Is the fracture or dislocation in the cervical, thoracic, or lumbar spine? Has the caliber of the vertebral canal been narrowed? To what degree is the vertebral body compressed? Are the pedicles or the laminæ also fractured? These and many other important questions must be answered before logical therapy can be applied.

There is not a unanimity of opinion as to the best method of handling such injuries. In the earlier cases of our series, many of the conventional procedures were employed, with end results, which were in many instances, not entirely satisfactory. The later cases were treated according to the methods discussed in this paper and the final results have been excellent. Therefore it is our opinion that all uncomplicated fractures of the vertebral column resulting in compression of one or more vertebra with or without subluxation, should be promptly reduced under general anesthesia. This proceedure, the details of which will subsequently be given, should be carried out not later than one week following the injury, although excellent results have been obtained up to the end of the third week. Provided no systemic complications are present and one is certain that there is no evidence of spinal cord or cauda equina injury, delay serves

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only to lessen the chances for an anatomic result.

For fracture and fracture-dislocations of the cervical spine the method previously described by Taylor[1] has been employed. Place the patient on the fracture table, in the supine position so that the feet may be securely fastened to the adjustable foot pieces. (Fig. 1) Apply a head halter and attach thereto a broad band or strap which is passed around the operator's buttock. The operator places his hands on either side of the patient's neck with the finger tips pressed firmly against the posterior spinus processes of the cervical vertebra. A general anesthetic, preferably ether by the open method, is now administered. By leaning backward the operator produces slight tension on the vertebral column, thereby eliminating the possibility of increasing the deformity and endangering the cervical spinal cord during the induction of the anesthesia. Following complete mus-

FIG. 1. A modification of Taylor's method for reducing a fracture or dislocation of a cervical vertebra.

cular relaxation, the head traction is increased and careful extension, flexion or rotation of the cervical spine performed, according to the type of fracture as demonstrated by x-ray. A plaster cast is applied after reduction while the operator holds the head in the desired position. (Fig. 2) The proceedure is safe if every precaution is exercised. The surgeon should take full charge of and be at all times responsible for the position of the head, from the time anesthesia is begun until the plaster cast is hardened.

Our experience with compression fractures and fracture-dislocations of the upper ten thoracic vertebra is limited, since fractures of this portion of the vertebral column are relatively infrequent. This part of the column is much less mobile than the cervical or lumbar spine; consequently, hyperextension is much more difficult to obtain. Also

FIG. 2. Photographs to illustrate the type of cast used for fractures or dislocations of the cervical spine. The important features are the occipital extension of the cast and the thoracic freedom.

no satisfactory method has as yet been devised to place this portion of the spinal column "on stretch" while the fractured vertebra are being manipulated. The compression fractures in this zone have been markedly improved by forced hyperextension with the patient under general anesthesia, but normal anatomic relations of the involved vertebra are seldom reestablished.

The majority of fractures of the spinal column without nerve tissue damage, occur between the tenth thoracic vertebra and the sacrum. Fortunately, anatomic or near anatomic reductions can be accomplished in this zone with safety. (Fig. 3) The patient is placed in a prone position on a fracture table. A very strong leather vest is laced snugly about the thorax, the vest having heavy leather "suspenders" with metal rings attached in the region of the supraclavicular fossae. The lower edge of the stationary part of the operating table should be at the midsternal point. The upper part of the torso is fastened in this position by straps passing through the metal rings of the vest and buckled to the upper part of the table. The

feet are then fastened to the footpiece. The anesthetic is now given with the patient "on stretch" so that no undue deformity of the weakened spine may occur. Following complete muscular relaxation further traction of the lower extremities is applied and the mobile part of the operating table is slowly lowered. The operator stands astride the patient with his hands locked beneath the patient's abdomen in such a manner that he may flex and extend the lumbar spine to any degree indicated. Not infrequently, slight subluxations are reduced by stretching alone, but alternate flexion and extension is necessary to reduce compression fractures. Following the reduction a plaster cast is applied, fixing the lower half of the thorax and the pelvis, with the lumbar spine in moderate hyperextension.

Comment: In fractures or fracture-dislocations of vertebral bodies without injury to the spinal cord or cauda equina, the displacement of bone fragments is seldom great enough to sever the very strong anterior longitudinal ligament or the equally important posterior longitudinal spinal ligament. For this reason the vertebral column can be manipulated with safety while the patient is under general anesthesia, provided the column is held taut by properly applied traction and maintained in position during the manipulation. Failure to observe this most important feature of the procedures herein advocated may lead to disastrous results. We would also emphasize the importance of creating a mild stretch on the vertebral column before the general anesthetic is administered. We have not had a single in-

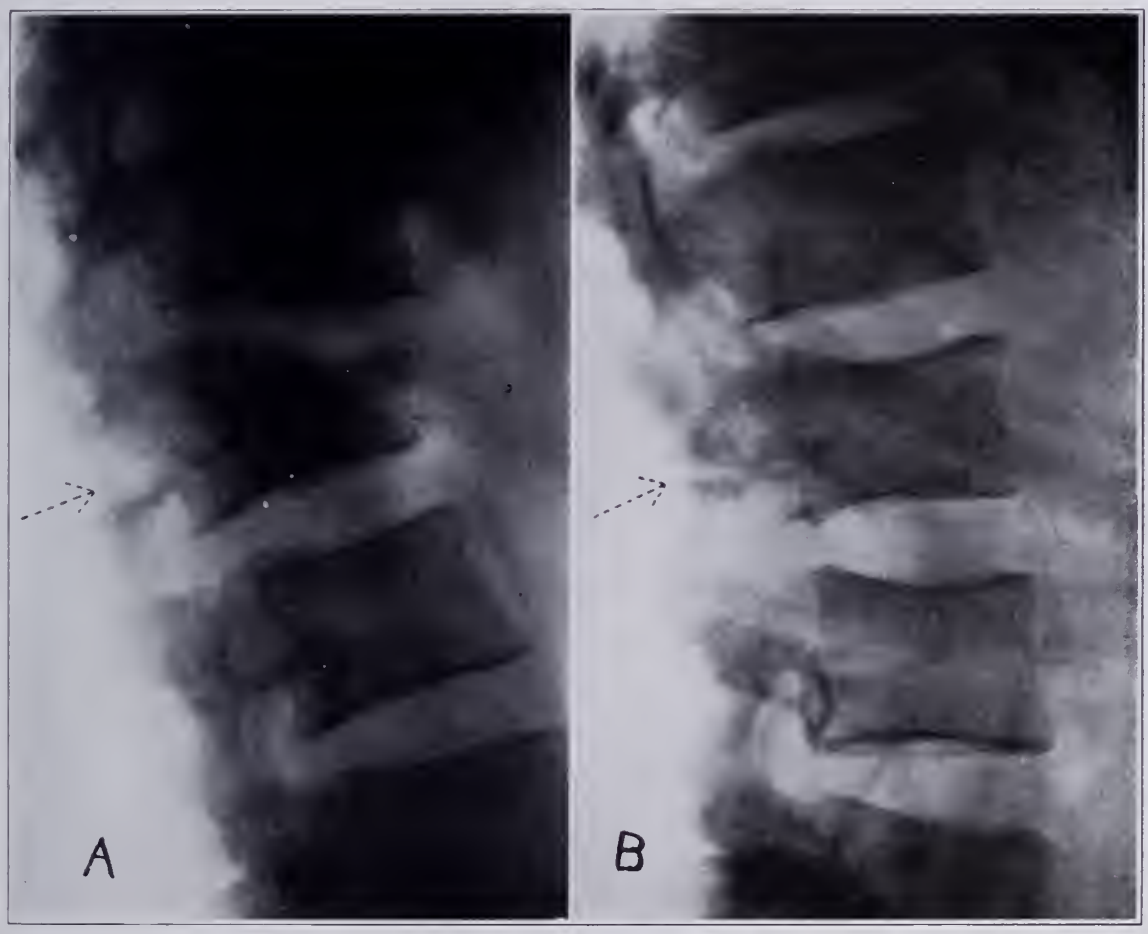

FIG. 3. A common type of compression fracture of a vertebra (A) which can be completely reduced (B).

stance in which damage to the spinal cord or cauda equina could be attributed to the operative procedure described above.

Fractures of the vertebral bodies heal very slowly, seldom showing actual deposition of calcium along the fracture lines within the vertebra. After many months some bony healing takes place between the fragments along their cortical surfaces, but the greatest support of a weakened body is obtained by "bridging" along the spinous ligaments to the uninvolved vertebra above and below. This form of healing, referred to as spontaneous internal immobilization, unfortunately does not always occur. There are instances in which operative internal fixation is indicated but these cases will be rare if proper reduction is accomplished shortly after the injury. Following the reduction of a fractured vertebra and immobilization with a plaster cast, the patient should be kept in bed for from two to three months and the plaster cast worn for from six to eight months from the time of injury. A properly made brace support should then be worn for another five to six months to insure against subsequent partial collapse. To be sure, there are many exceptions to this rule, but a good result may be expected if this treatment is followed.

GROUP II

Fractures and Fracture-Dislocations With Injury of the Spinal Cord or the Nerve Roots Within the Vertebral Canal: This group, containing 61 cases, is the example of "fractures of the spine" which have unfortunately cast such a gloomy prognosis on all fractures of the vertebral column. Although the mortality rate is high and the majority of the end results very unhappy, there are a few of these unfortunate victims that do recover. They recover if the spinal cord or the cauda equina lesion is not too extensive, if the urinary bladder is judiciously handled and if good nursing care is available, but not through laminectomy. We have seen only one case of spinal cord injury either at operation or at the autopsy table where laminectomy might have bettered the chances for recovery. Partial physiologic interruption of the spinal cord as demonstrated by the physical findings usually means hematomyelia for which surgery offers no relief. Complete anatomic or physiologic interruption of the spinal cord due to a large intramedullary blood clot, crushing of the fibre tracts, or actual laceration of the cord can seldom be improved by surgical therapy. On theoretical grounds only, may one help a crushing lesion of the cauda equina by laminectomy.

Spinal Nerve Root Injuries: In this group, we have included twelve cases of spinal nerve root injury exclusive of the cauda equina type. Such lesions frequently offer some difficulty both from the standpoint of diagnosis and therapy. They are always associated with fracture of a portion of the vertebra, but not necessarily a fracture of the vertebral body. The symptoms and signs are variable according to the extent of damage to the spinal nerve or nerves. In case of complete physiologic interruption of a spinal nerve by collapse of the bony wall of an intervertebral foramen, no great functional disturbance may follow if only one root is involved. In the lower cervical and lower lumbar areas such a lesion is much more evident and weakness of corresponding muscle groups can be demonstrated. When two or more adjacent spinal nerve roots are injured the subsequent loss of function is more striking and incapacitating. The complete spinal nerve lesions are rather rare, only two of the twelve cases showing this type of disturbance. The partial type of nerve interruption or the so-called "irritated nerve" is much more common. Great pain along the distribution of the involved nerve is noted. The corresponding skin zone is very painful to the slightest touch. In two instances in this group where the right eighth and ninth thoracic nerves of one and the right ninth and tenth thoracic nerve roots of another, were pressed upon by narrowed intervertebral foramina, the pain was so great

that it was thought a rupture of an intra-abdominal viscus had occurred. Careful examination will show that the pain and tenderness is limited to the cutaneous surface. Proper reduction of the fractured vertebra gives relief in the majority of cases; however, there are instances when it may be necessary to free the nerve or to crush the dorsal roots by surgical measures according to the individual indications.

Hematomyelia: Intramedullary hemorrhage of the spinal cord is a common lesion following slight to severe sudden spinal cord compression. Such a lesion may also occur spontaneously, presumably due to arterial disease. This type will not be considered in the present discussion. At the time of the trauma when the spinal column is suddenly acutely flexed beyond physiologic limits, a vertebra is subluxed or compressed thereby narrowing the vertebral canal to such a degree that the spinal cord may be damaged. This damage may be great or slight according to the extent to which the vertebral canal has been temporarily or permanently narrowed. The gray matter of the cord is soft and well supplied with thin walled blood vessels whereas the fibre tracts are relatively avascular and firm. It is reasonable to expect the gray matter to suffer more than the white matter when mild to moderate sudden pressure is applied to the spinal cord as in fracture or fracture-dislocation of a vertebra. Trauma of this character often results in hematomyelia, sometimes scattered in an irregular manner giving bizarre clinical manifestations, more often conforming to anatomic patterns and producing typical clinical syndromes. In still other instances, the distribution of the hemorrhage, points toward stretching of the spinal cord as the etiological factor, rather than compression secondary to narrowing of the vertebral canal. Added support is brought to this theory when no evidence of vertebral column injury can be shown by x-ray or even at autopsy. However, the force may be applied, traumatic hemotomyelia appears in many forms and variable extents, from the mildest type, disturbing the motor functions of one extremity only, to the more extensive hemorrhages producing complete physiologic interruption of the spinal cord. We have chosen to group these lesions according to the physical findings they produce: (1) the paraplegia-brachialic type (to which the monoplegia-brachialic type could be added), (2) the modified Brown-Sequard type, (3) the syringomyelic type, (4) the complete transverse type, and (5) the very rare bulbo-spinal type. (Fig. 4).

· TYPES OF NERVE TISSUE LESIONS ·

SPINAL NERVE ROOT	12 CASES
HEMATOMYELIA	
1. PARAPLEGIA BRACHIALIS	2 CASES
2. MODIFIED BROWN SEQUARD	4 CASES
3. SYRINGOMYELIC	9 CASES
4. COMPLETE TRANSVERSE	28 CASES
5. BULBO SPINAL	2 CASES
LACERATION OF SPINAL CORD	2 CASES
CAUDA EQUINA	9 CASES
TOTAL	68 CASES

FIG. 4. This chart shows the number of cases in each type of nerve tissue lesion which are discussed in the text.

(1) *The Paraplegia-Brachialic Type:* This type of hematomyelia as the name implies is limited to the cervical cord. Since these statistics were compiled we have had one case of monoplegic type of paralysis and two more in whom both upper extremities were affected. No instance of a similar lesion in the gray substance of the lumbo-sacral cord has been observed. Our experiences with the entire five cases will be drawn upon in this discussion. Clinically these cases are characterized by partial to complete paralysis of the upper extremities, loss of the pectoral, bicep, tricep, and radial reflexes, analegesia and thermoanesthesia over the arms, forearms, hands and upper part of the thorax. Touch and muscle-joint-tendon sensibility are unimpaired. The abdominal reflexes may or may not be present but there are no demonstrable changes in the lower extremities. The urinary and rectal functions were impaired in four cases, unaffected in

one case. There is usually an associated bone lesion of the fifth or sixth cervical vertebra. In none of these cases was there any physical evidence that the intramedullary hemorrhage increased beyond that present shortly after the accident. One case had slight respiratory difficulty for forty-eight hours but the air hunger was not of sufficient degree to warrant the use of the respirator.

Recently a 48-year-old man presented this picture of diplegia brachialis associated with respiratory difficulties. He subsequently developed pneumonia from which he died on the fourth day following the accident. Autopsy disclosed bilateral small hemorrhages limited to the gray substance of the spinal cord and extending over a distance of one centimeter in the long axis of the gray column. (Fig. 5C).

The treatment consists of traction with the head halter for one week during which time the upper extremities are passively moved several times each day. Automatic urination is established. At the end of a week one may safely reduce a compressed fracture or a subluxation of a vertebra, if present, and the head should be immobilized with a cast. Even in the instances where a bone lesion cannot be demonstrated, the head should be immobilized with a plaster cast on the assumption that a subluxed vertebra has spontaneously reduced itself. In no instance has there been complete recovery of motor function. Normal cutaneous sensations have been reestablished in each case. Normal urinary bladder and rectal function has returned in three to four weeks following the injury. The residual motor weakness has been most

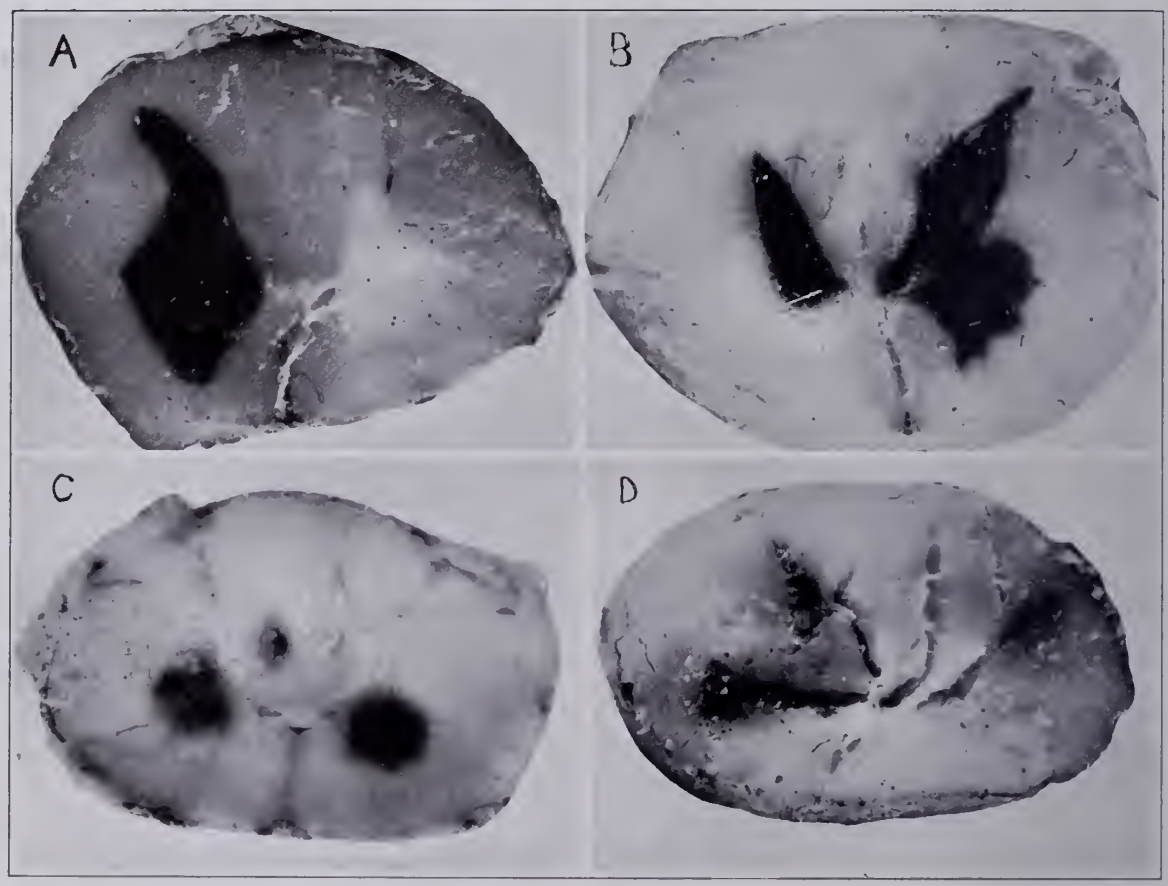

FIG. 5. Photographs of cross sections of four spinal cords showing hematomyelic lesions producing the clinical syndromes: A, the Brown-Sequard type; B, the syringomyelic type; C, the paraplegia-brachialic type; D, the complete transverse type.

noticeable in the hands, particularly flexion, abduction and adduction of the fingers.

(2) *The Modified Brown - Sequard Type:* This form of intramedullary spinal cord hemorrhage, resulting in flaccid paralysis of one lower extremity with analgesia and thermoanesthesia of the opposite half of the trunk and opposite lower extremity, was present in four cases. The lesion is a relatively large blood clot limited to a gray column and which has not spread either up or down the spinal cord. (Fig. 5A) In none of the cases observed was the dorsal column of the spinal cord affected or at least there were no findings to indicate such an involvement. There was disturbance of urinary bladder control in each instance, which righted itself after a period of ten days to two weeks. Each of the four cases had a bone lesion of the lower cervical spine. In no case was the bony deformity great enough to warrant radical measures, therefore the conservative immobilization by plaster cast was resorted to after one week with the head halter traction. The paralysis of the lower extremity showing the motor changes began to improve after the third to fourth week following the injury and gradual improvement continued for about a year. There was in each case a residual spasticity of the affected extremity. On the side of the sensory dissociation, improvement was noted between the fifth and sixth weeks, indicated by a feeling of warmth and in some by a burning sensation over the involved area. One case did not recover completely, being left with a most painful situation characterized by a feeling over the abnormal skin zone as if there were a mild degree burn. Even clothing or the lightest touch aggravated this discomfort. We believe that in this type of residual sensory disturbance the spinothalmic tract should be divided above the lesion. In general, one might say that hematomyelia resulting in partial spinal cord interruption giving the clinical findings of a modified Brown-Sequard syndrome, offers a moderately favorable prognosis. One of these four patients died, but not as a result of the spinal cord injury alone. Also one may add that any disturbance of the urinary bladder and anal function will right itself if handled conservatively.

(3) *The Syringomyelic Type:* This is probably not an ideal term to apply to this group of nine cases. The sensory dissociation caused by central cavitation of the spinal cord is identical with that following hemorrhage into the gray columns. (Fig. 5B) On this basis we have used "syringomyelic" as an adjective to indicate this sensory dissociation rather than the underlying pathologic state. In each case there was complete or nearly complete analgesia and thermoanesthesia below the level of the lesion. The bladder and anal sphincters were disturbed in each instance. In seven cases the findings pointed toward the lower cervical cord as the site of the hemorrhage. Five of these patients showed slight weakness of the hands and four had definite weakness of both lower extremities. In two cases, one of the lower cervical and one of the lower thoracic area, no evidence of a bone lesion could be demonstrated. One patient had complete quadriplegia, with analgesia and thermoanesthesia below the lesion. Cotton-wool could readily be appreciated over all cutaneous surfaces and the slightest joint motion was felt with accuracy. This patient died sixteen hours following the injury from respiratory paralysis. The extent of the hemorrhage was accurately charted by spinal segments. (Fig. 6). Six of the nine patients in this group recovered. In four of these six cases there was slight residual weakness of one hand but in no instance did marked sensory disturbances persist. Voluntary control of the urinary bladder and rectum was regained in each case. Slight spasticity of a lower extremity could be demonstrated in two cases. The associated fractures or fracture-subluxations were treated by plaster and brace supports according to indications. In general, one may say that in hematomyelia of the syringomyelic type of sensory dissociation with only

moderate degree disturbance of the motor function in the extremities, there is a fair chance of a good functional recovery provided the hemorrhage does not implicate the fourth and fifth cervical spine segments, with phrenic paralysis.

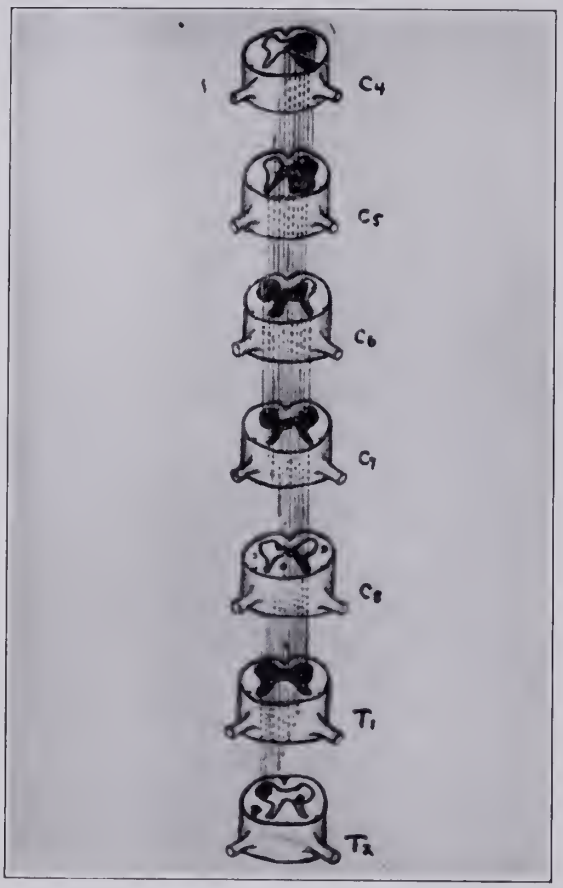

FIG. 6. A diagram that illustrates the extensive and bizarre form of hematomyelia found at autopsy in a patient that showed the syringomyelic type of sensory dissociation during life.

(4) *The Complete Transverse Type:* These 28 cases with physical signs indicating complete physiologic interruption of the spinal cord, comprise a hetrogeneous group in which there was large intramedullary hemorrhage, partial crushing of the fibre tracts, or a combination of these two traumatic lesions. (Fig. 5D). The common site is the lower cervical area although the spinal cord may be damaged to this extent at any level. Upon admission to the hospital it is important to place a patient with a complete transverse lesion on an air mattress, for it is during the first few hours following the injury that pressure ischemia over bony prominences may cause tissue death, which becomes evident only after many days. When the period of "shock" has passed (twelve to thirty-six hours) the patency or obstruction of the spinal subarachnoid space should be established by means of the Queckenstedt test. Where there is a free rise and fall of spinal fluid on jugular compression, little if any benefit can be obtained by laminectomy. Where there is complete subarachnoid block, the damage to the spinal cord is often so great that improvement cannot be expected to follow any operative proceedure. Where there is only partial spinal subarachnoid block, one might logically consider laminectomy, but we have seen only one case, as previously stated, where laminectomy seemed to have influenced the lesion for the better. The results are more satisfactory when bed sores are prevented, automatic urinary bladder function established, the extremities passively moved and massaged and the deformity of the spinal column corrected by a closed reduction.

(5) *The Bulbospinal Type:* In 1929 a seven-year-old boy was admitted to the hospital with a history of having been struck across the upper part of his neck, posteriorly, with a small baseball bat. He was drowsy and all extremities were strikingly paretic, although some motion was observed in the hands. The respirations were continuously irregular both in rate and rhythm. The spinal fluid was clear and no evidence of spinal subarachnoid block could be demonstrated. The x-ray showed a fracture of the first cervical vertebra. The boy improved slightly for two days, at the end of which time it was noticed that he could not swallow although he was sufficiently conscious to attempt to do so. He gradually failed and died on the fifth day following injury. At autopsy no evidence of brain trauma was observed. Scattered from the lower border of the pons downward to the level of the second cervical spinal cord segment, many areas of hemorr-

hage could be seen on section. These hemorrhagic areas did not conform to any anatomic structure within the spinal cord or brain stem. In 1931 a similar clinical picture was observed in a three-year-old boy who had accidentally hanged himself between a fence and an adjacent cellar door. The x-ray showed a dislocation of the first cervical vertebra upon the second. The child gradually recovered over a period of six days at which time the dislocation was reduced. In this instance there was likewise some difficulty in deglutition which disappeared in two weeks following the injury.

We have classified these two cases as of the bulbospinal type of hematomyelia because of the anatomic location of the hemorrhage. The outstanding clinical features of such a lesion seem to be injury of the upper neck, stupor, varying degrees of paresis of all the extremities, total irregularity of respirations and difficulty in swallowing. The location and nature of the injury makes it a serious one. Conservative treatment is indicated.

Laceration of the Spinal Cord: Laceration of the spinal cord frequently results from gunshot wounds of the vertebral column, stab wounds that penetrate the vertebral canal and fractures of the vertebral column resulting from direct trauma. Gunshot and stab wound injuries have been excluded from this series. It is seldom that indirect trauma causing fracture or fracture-dislocation of a vertebra, will in turn grossly lacerate the spinal cord. The cases in which there was crushing of the fibre tracts without gross tearing of the pia, have been included under the heading of complete transverse type of hematomyelia. In the group of laceration of the spinal cord, only two cases have been included. One was the result of direct trauma, the other from indirect trauma producing a fracture dislocation of the seventh cervical vertebra. In both a complete spinal subarachnoid block could be demonstrated and the spinal fluid was bloody. The lesions were verified at autopsy.

Compression of the Cauda Equina: There were ten instances in this series where a demonstrable bone lesion below the level of the twelfth thoracic vertebra had compressed the cauda equina alone or the cauda equina and the conus medullaris together. There was also one case in which a dislocation of the third lumbar vertebra had injured the cauda equina, subsequently reducing itself. The exact nature of the injury in two of these eleven cases was never determined, consequently, they have been excluded as cauda equina injuries. In seven of the remaining nine cases, laminectomy was performed. Two of these patients were possibly benefited by the operation while the remaining five were not affected by the proceedure. The other two cases were treated by closed reduction. Whenever x-ray of the vertebral column shows a fracture and the physical findings indicate that the cauda equina has been or is being compressed, laminectomy is indicated on theoretical grounds. The release of the pressure may help, since the cauda equina is composed of peripheral nerves. Our experience has been that a complete crushing of the cauda equina produces a lesion from which the patient will not recover, even though there has been no anatomic division of the nerve filaments. When a partial lesion of the cauda equina is present, operation should not be deferred, since great damage may be produced by the edema subsequent to the trauma. In cases of complete physiologic interruption of the cauda equina by trauma, one seems justified in waiting until the general condition of the patient has improved, before laminectomy is performed.

GROUP III.

Nerve Tissue Injury Without Apparent Bone Lesion: The seven cases included in this group have been discussed in Group II and have been included in the chart, (Fig. 4). We feel they deserve special mention, however, because of the absence of apparent bone lesion. Six of this group were injuries of the spinal cord and one was a crushing injury of the cauda equina. Three of the six

with spinal cord lesions died and were autopsied and the case of injury of the cauda equina was verified at operation. The types of intramedullary cord hemorrhage were in no manner different from those associated with demonstrable fractures or fracture-dislocations of the vertebra. The fact however, that in two instances at autopsy it was definitely demonstrated that there had been a dislocation of a vertebra which had spontaneously reduced itself and also that the one case of cauda equina injury was shown at operation to be due to a dislocation, indicates that negative x-ray findings do not necessarily exclude the possibility of a bone lesion. On the other hand, there was one case in this group that came to autopsy, where careful examination failed to disclose any evidence of injury to the spinal column or extradural extravasation of blood, although a typical hemorrhage of the gray columns was present. There are then two possible etiological factors in traumatic hematomyelia when the x-ray fails to demonstrate a bone lesion: first, vertebral dislocation which has become spontaneously reduced; second, stretching of the spinal cord with rupture of a blood vessel within the gray column of the cord. It has been our practice in all instances of spinal cord or cauda equina injury where a careful x-ray examination fails to disclose a bone lesion, to assume that a dislocation of a vertebra had been spontaneously reduced. In such cases it is not necessary to immobolize the part for as long a period as when a fracture of the vertebra is present, but satisfactory healing of the vertebral column should not be expected to occur short of three months.

Comment: This series of cases representing the various type of injury to the spinal nerves, cauda equina and spinal cord, has been classified in an attempt to clarify the underlying pathologic lesions and the clinical syndromes they may produce. It is absolutely essential to have a clear understanding of the probable pathologic state in any case before embarking upon radical surgical treatment. Laminectomy has been advocated so freely that even the laity have come to believe that every broken back should be operated upon. An attempt should be made to correct such an erroneous concept of this problem.

In any instance where damage to nerve tissue can be demonstrated, this is the all-important feature, the associated fracture or dislocation of the vertebra being entirely secondary. The bony deformity in some cases may seemingly be of primary importance, but only insofar as such deformity should be corrected to release persistent compression of nerve tissue. One may say that in general there are three major groups of cases, (1) compression of peripheral nerves (cauda equina and spinal nerve roots), (2) partial physiologic interruption of the spinal cord, (3) complete interruption of the spinal cord. In group one, some form of operative treatment is indicated the exact nature of the procedure to be determined by the indications in the individual case. In group two, laminectomy should be performed only when the physical findings indicate that the partial interruption of the spinal cord's conductivity is due to an extramedullary compression. As has been previously stated, partial physiologic interruption of the spinal cord usually means intramedullary hemorrhage. The fractured or dislocated vertebra should be reduced by the closed method and if the spinal subarachnoid space is freely patent, laminectomy should not be considered. The third group offers the opportunity for the surgeon to take the position that laminectomy will do no harm and may help reestablish the circulation in the spinal cord by giving this structure more space. Theoretically this is true, but we have never seen a case where the practical application of this principle has definitely altered the course of the lesion. To be sure, there are instances where at operation, the spinal cord fairly bulged through the opening of the incised dura, but in such cases the spinal cord has been damaged beyond repair. In other cases of complete physiologic interruption, when

at operation the spinal cord was moderately swollen, there was remarkable recovery of function, but certainly the laminectomy could not have influenced the natural course of events other than to have weakened the spinal column at an already weak point. No doubt there are rare cases of complete interruption of the spinal cord's conductivity associated with a fracture or fracture-dislocation of the vertebral column, that would be favorably influenced by laminectomy, but up to the present time we have not observed such an example.

Summary: An attempt has been made in a somewhat abbreviated manner to set forth our observations in a series of 151 cases of fracture or fracture-dislocation of the vertebral column with and without spinal cord in-

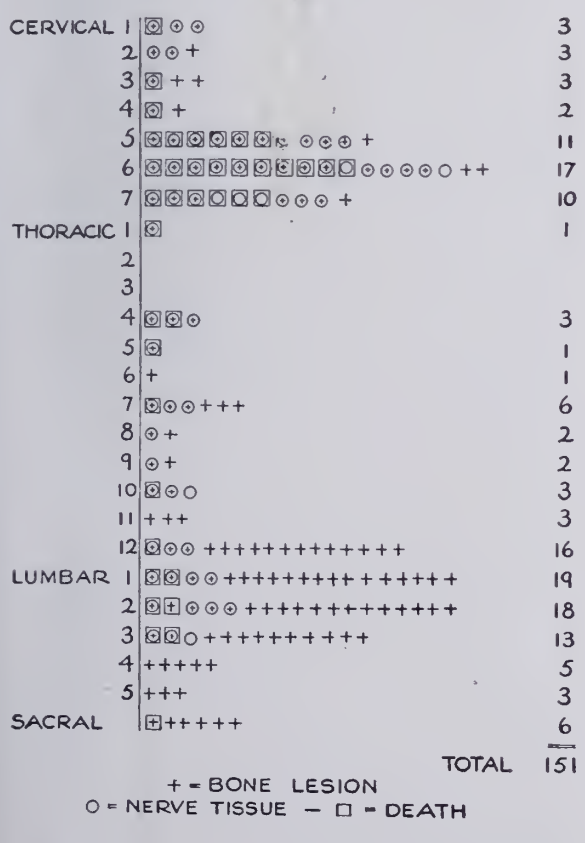

FIG. 7. A chart which summarizes the position of each lesion, the extent of each lesion and the final mortality of the entire series.

jury. (Fig. 7). The immediate reduction, by the closed method, of all uncomplicated fractures and fracture-dislocations has been advocated. The several clinical syndromes resulting from traumatic intramedullary spinal cord hemorrhage, have been discussed. The indications for laminectomy according to our personal experience have been presented.

FOOD FADDISTS

Man is a decidedly gullible creature; his powers of reasoning are easily dulled by the force of his emotions, and it is this very characteristic which gives the food faddists courage to stand forth even in the face of persecution, Marion R. Farren states in her article, "Food Fads and Faddists," in the October *Hygeia.*

When the faddist is not making rash promises for things that are too good to be true, he is working on the influence of fear or the power of suggestion in his attempt to convince the public that his cult is its only hope of health and happiness.

Another type of faddist dedicates himself to exploiting the special properties of certain foods. He has been called the "eat-more" faddist.

Other commercial remedies, for they cannot truthfully be called foods, that are foisted on the public as essential for health and for the cure of constipation, catarrh, goiter, kidney disorders and even sinusitis are the outgrowth of rank commercialism.

Certain faddists borrow the superstitions and tales of black magic of the past and preposterously warn against the eating of tomatoes because they cause cancer and against eating meat because it makes one sensual and warlike, to mention only two of many such superstitions.

There are also the fasting faddists who insist that one should starve for a period of from ten to twenty days each year to rid the body of impurities and who propound a great variation of such starvation diet regimens.

Not least in number or importance are the "nature" faddists who believe that food should be eaten only in the natural state; this in itself is ridiculous, as many foods are rendered more digestible as well as more palatable by cooking.

The article warns, "Make every effort to give your body the things it needs, but do not make a fetish out of nutrition; a healthy mind is as essential as an adequate diet in the building of strong, healthy bodies.

SYPHILIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER*

By J. U. Rohr, M. D.
Charleston, W. Va.

Definition: Syphilis is a specific, contagious disease of slow evolution, caused by the treponema pallidum, propagated by inoculation (acquired syphilis) or transmission through the mother (congenital syphilis). It spreads from the point of inoculation by means of the lymphatics to the skin, mucous membranes and to practically all the tissues of the body. It is endemic in most of the civilized world and is a disease of grave importance to the medical profession as well as to society in general.

Whether or not syphilis is a disease handed down by prehistoric men or imported directly from the island of Haiti into Europe by the sailors of Columbus we are not certain. Our present knowledge of the disease may be said to have begun with the devastating epidemic which swept Europe with the closing years of the Fifteenth and the beginning of the Sixteenth centuries.

Etiology: Though syphilis was widespread for several centuries, and had been clinically studied and written about voluminously, the germ which is directly responsible for syphilis was not discovered until in 1905 by Schaudinn and Hoffman.

It was first classed by Schaudinn as a spirochete, but later was placed by the same author in the class with the treponemes and was called the treponema pallidum. However, clinically the name spirocheta pallida has always been used. The germ itself is an exceedingly delicate spiral organism, about 0.25 of a micron in thickness and of an average length equal to the diameter of a red blood cell, but ranging from four to 24 microns in length. The number of turns in the spiral varies from six to 24. The spirocheta pallida has a highly characteristic motility, consisting of three movements, a movement of translation in the direction of the long exis, a slower revolution or rotation of the spiral, like a cork-screw on its own axis, and a waving or twisting movement from side to side. Transmission of the disease to animals preceded the identification of the organism, and was accomplished in 1903 by Metchnikoff and Roux who inoculated a female chimpanzee on the clitoris, with the successful development of a primary lesion and secondary eruption. It was later cultured by Noguchi who employed an agar medium which was largely ascitic fluid.

From an epidemiologic standpoint certain characteristics of the spirocheta pallida markedly influenced the clinical problems of syphilis. The organism has a low viability, cannot resist drying or disinfectants, and is an anaerobe. This combination of weaknesses has been the protection of the human race against a universality of syphilitic infection as complete as the universality of tuberculosis. It is because of these weaknesses more perhaps than any other reason; that it is considered a venereal disease at all for only in the mouth and vagina, and under the foreskin are found year in and year out the biologic conditions which perpetuate the infection, and as a result, the viable organisms are usually found in these locations. Yet we know by clinical experience that there is no part of the body, if inoculated, in which the organism will not grow. It is not even necessary to have an abrasion, especially on the mucous membrane, for the organism to enter the system, though an abrasion favors its entrance. The spirocheta pallida probably cannot survive exposure to air and light even in a moist environment for more than eleven or

*Read before the Kanawha Medical Society at Charleston on March 13, 1934

twelve hours. It perishes at once on drying and this fact does away with all necessity for the disinfection or special cleansing of rooms or dry fomites. On the other hand, dressings with moist discharges may be dangerous, and objects such as pipes, cups, etc., passed from person to person, are extremely so. The organism is destroyed by even the weakest antiseptics, if not protected by a dense precipitate of proteins which preserves the conveying medium intact. Soap and water, and probably mere contact with metal surfaces are destructive to the organism. Yet experience teaches that where infection is most carefully guarded against it may occur, and the slightest oversight or break in a series of precautions will often suffice to admit the spirocheta pallida.

There have, from time to time, been advanced, theories that there are many strains of the spirocheta pallida, and that certain strains have a tendency to attack certain vital organs, that certain strains attack the nervous system, others the cardiovascular system, others the bony system, while still others would be manifested only by external or skin lesions. This has not been definitely proven because no one has been able definitely to evaluate the difference in the degree of natural immunity in the different individuals; which probably has more influence, on the special tissues involved, than do the different strains of the organism. I do not mean to say that I believe all strains of the organism have the same virulence because there is sufficient evidence, as in many other diseases, to show that infection from contact with an acute case is much more virulent than it is from an old chronic or attenuated case. That coupled with the differences in immunity of individuals has a great deal to do with the severity of the particular case. But I do not believe there has been sufficient evidence to definitely state that there are, or are not, different strains of organisms. This brings up the subject, at what stage is syphilis most infectious? When is a patient non-infectious? Broadly speaking the older and more chronic the condition the less is it infectious to others. The initial viable lesion, or chancre, in its early stages is definitely the most infectious lesion of all the various stages of syphilis. The degree of infection, even in the chancre, decreases very rapidly as time goes on; for while we are able to find many of the syphilitic germs in the early chancre, after ten days to two weeks, even without treatment, they are very difficult to find. The next most contagious lesion is the secondary eruption and secondary ulceration or mucous patches. This period also lasts only a short while until the natural immunity of the body has begun to dissipate the organisms, at which time, the degree of virulence and contagiousness is very slight. This contagiousness, however, is always revived to some degree when relapse occurs, especially if there are open lesions.

Syphilis in Marriage: It is common for a patient who has syphilis to ask his doctor, "When will it be safe for me to get married?" This is a difficult question for anyone to answer, but we will say in the beginning that the longer the period of time the safer it is. Then again, a great deal depends on how much, at what time, and with what degree of regularity the patient was treated. Most authorities agree that a syphilitic person should not marry under three years after serologic tests are negative. A great deal of statistical evidence has shown that 75 to 90 per cent of syphilis in the wife is acquired from the husband in the first two years of his infection. It is an even more difficult question to say when a woman who has syphilis can safely give birth to a child, because it is extremely difficult to tell with exactitude when a woman is cured of syphilis to the extent that she cannot transmit it to the child. We believe, however, that with our modern treatment, given during pregnancy, a perfectly healthy child may be borne by a mother who herself continues to have syphilis.

Pathology: The early students of syphilis believed that the entire pathology of syphilis was what they could see, that is, that

it was a skin disease primarily and that the chancre, secondary eruption and tertiary lesions of the skin were the extent of its ravages. Though there was much study and extensive research during the seventeenth and eighteenth centuries the medical profession was very slow to realize that the cardiovascular system, the vital organs, and central nervous system were attacked fairly early in the course of syphilis, and that it is in these locations that the disease does its greatest damage. It is true, the central nervous system retains its resistance for a long time and succumbs only to a long continued attack lasting over years, and in many cases escapes entirely. The question has arisen under the more modern treatment as to whether or not there is an increase in neurosyphilis. A great many believe that insufficient early treatment tends to cause an increase. Raoul Bernard, a Belgian, after twenty years of modern treatment and perhaps with more study than the ordinary syphilologist, has recently come to the conclusion that a syphilitic should not be treated at all until after the secondary rash appears. His belief is that the natural immunity, which reaches its highest standard at that period, is interferred with and that more cases of neurosyphilis is the result.

But to go back to the more minute study of the pathology of syphilis. Where it was first believed that the chancre was the first pathological lesion, we now know that the pathology begins immediately following inoculation. Neisser demonstrated in 1906-1909 that syphilis is a systemic infection with the organism obtainable from the bone marrow, spleen, and testes within forty-eight hours after inoculation, and many days and even weeks before the very first appearance of the chancre itself. The chancre, accepted by traditional syphilology as the first manifestation of syphilis, is in reality a rather late affair. It was the old idea also that syphilis remained a local condition until the secondary eruption appeared and that by destroying the chancre the patient would be permanently cured, whereas, we now know that the disease is not cured with the healing of the local lesion as so many patients and even doctors still believe. The first pathological lesion is infiltration of the blood and lymph vessels at the point of entrance. This extends very rapidly, more particularly along the lymph vessels, showing that from the very beginning syphilis is a disease more particularly of the blood and lymph tissues. Then comes the chancre which is the first visible pathology. It is a very superficial and practically self-limited ulcer which heals without scar formation.

During the period of the chancre, other foci of infection similar to the chancre are being developed throughout the body, their number, location and activity being proportional to the virulence of the organism and the peculiarities of the host. When the secondary stage appears, manifested by the skin eruption, mucous patches, etc., the natural immunity of the body to the infection is raised to its highest standard. This systemic defense causes disintegration of the organisms, which at this stage disappear very rapidly from all foci of infection, fibrosis occurs, and the quiescent period or latency of syphilis takes place. Any of these secondary symptoms may reappear with revival and increase in the number and virulence of the organism, only to go through the same cycle of increased natural immunity with again reduction in the number of organisms and quiescence again. Through the whole course of the disease we have these frequent relapses each one resulting in degenerative changes and fibrosis. With each cycle more new tissue is involved until we reach the late stages of neurosyphilis. The length of the period of latency may be short or long depending on the general health and resistance of the patient. We know that some patients go through the cycles and reach neurosyphilis within one to two years, while others may take from twenty-five to fifty years to reach this stage, and many do not ever reach the neurosyphilis stage.

The pathology of the early stages of

syphilis causes very little general disturbances in the human system, but is progressive and leads to the tertiary or late lesions. In the tertiary lesions any part, or vital organ of the body may be attacked. The pathology in these organs is very much the same in the beginning as the pathology in the chancre, that is, the blood and lymph vessels are attacked first by inflammation and infiltration followed by fibrosis, the result of which is an obliterative endoarteritis and sclerosis. In the larger arteries the destruction of the elastic cells and weakening of the vessel walls often results in aneurism. In neurosyphilis degenerative changes take place in the nerve cells and cause the many more or less spectacular conditions such as general paralysis, locomotor ataxia, general paresis, etc. The general practitioner as a rule attaches a good deal of importance to these neurosyphilitic lesions, and justly so. However, in number of cases, severity of symptoms and per cent of mortality they do not compare with the cardiovascular lesions. Osler in his writing emphasized this fact and said that more than 13 per cent of the deaths from all cardiovascular diseases were due to syphilis; much higher than the percentage of deaths in diseases of the nervous system due to syphilis. The viscera and other vital organs of the body are less frequently attacked by syphilis, but they deserve a fair share of consideration. The changes are sclerotic and degenerative, finally destroying the organ.

HISTORICAL OUTLINE OF PSYCHIATRY

By R. R. Summers, M. D.
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Consideration of the madman, or more properly speaking of any individual who shows any tendency to deviate mentally from what was considered to be the norm, has been a matter of interest to humanity since antiquity. In common with other branches of medical science, treatment of mental disorder was in the past greatly misunderstood, even to the point where it was regarded as a visitation of the Deity.

It is only within comparatively recent years that any real progress has been made in a scientific study of the causes, prevention, and cure of mental diseases. I have made an attempt in this paper to achieve a condensed statement of the early concepts of mental disease and of the present status of scientific measures designed toward a better understanding and control of mental irregularity.

Forms of insanity are mentioned as far back as written records are available. The Encyclopedia Britannica informs us that there is evidence in early Egyptian and Grecian history of the treatment of insanity as a disease. Kellogg writes of the ancient Egyptian treatment of the insane as taken from Egyptian hieroglyphic records, "If the spirit was diagnosed as an evil one it was to be driven out by the most active religious proceedings, and the patient passed through a heroic ordeal. On the other hand, if the spirit was a good one, non-interference was the order of the day, and the patient was treated with deference and even regarded as inspired."[1]

The Athenians stressed the importance of mental health. "We may almost say that just as in some places in this country careful attention has been given to sanitation and practically the whole field of mental hygiene has been neglected, in ancient Athens, the reverse was true, at least so far as theory goes, the great teachers put remarkable emphasis on the fundamental conditions of mental health."[2]

The history of insanity has been divided chronologically into four periods:

"The first period extends from 1700 B. C.

to 400 B. C.—from the first recorded mention of insanity to the dawn of psychiatric science in the Greek school of Medicine.

The second period is from 400 B. C. to 200 A. D. It is the first scientific evolutionary period of psychiatry, ending with the decline of the Greek school of Medicine.

The third period, from 200 A. D. to 1500 A. D., is the dormant period of psychiatric science continuing through the Middle Ages to the Renaissance.

The fourth period, from 1500 A. D. to 1800 A. D., is the second evolutionary period of psychiatry from the Renaissance to the present day."[3]

Hippocrates, about 425 B. C. recommended the use of mandrake root in treating suicidal mania, "give the patient a draught made from the root of mandrake, in a smaller dose than will induce mania."[4]

The properties of mandrake root are similar to those of Belladonna, an herb used at the present time, having a typical atropine action in stimulating nerve centers.

Hippocrates also treated insanity by means of "bleeding, purging, emetics, counter-irritants, mineral waters and baths, gymnastics and out-door games, together with music, travel, and change of climate."[5]

Mental disorder is also classified under the "Humoral theory of Diseases" by Hippocrates. It was supposedly caused from too much black bile in the body which affected the brain. The most prominently recognized form was known as melancholia. This theory is still well known to students of medicine.

In the gospel according to St. Mark there was a man who came into the presence of Jesus with an "unclean spirit", who had lived in the tombs, and in the mountains, because no chains would hold him. He is described as a man whom no one could tame, who night and day cried, and cut himself with sharp stones. This is evidently the Biblical conception of a madman.

In the book of Daniel we find the account of Nebuchadnezzar's madness. We see him as a man who eats grass, whose hair is long and tangled, and who is driven outside the city by his fellowmen. And at the end of seven years Nebuchadnezzar's right mind is restored to him. This is another Biblical conception.

An old Grecian document records the following conversation between Morosophus, a philosopher, and Protagoras of Abdera, regarding the colour-blindness of Xanthias, a friend of theirs: "But surely Xanthias was diseased, and his judgments about colour are of no more importance than those of a madman." To which Protagoras answers:

"You do not get rid of the difference by calling it madness and disease. And how would you define the essential nature of madness and disease?"[6]

The foregoing evidence indicates that madness was considered as a disease at that time, and was not regarded with the superstitious dread that we find in the succeeding centuries.

It is generally known that during the Middle Ages the prevalent belief was that insane people were possessed of demons and should be punished as such, with severe torture. The Encyclopedia Britannica states:[6]

"During that period milder cases of insanity were sent to sacred shrines where it was believed the influence of the saints would heal them. The shrine at Gheel, Belgium, thus became a resort for mental defectives, and is still known as such."

Conditions similar to these existed as late as and in some instances through, the eighteenth century. We have evidence in Shakespeare's plays of the treatment received by the insane. In, "Twelfth Night," Sir Toby speaks of Malvolio, who is discussed as a madman, "If all the devils of hell be drawn in little, and Legion himself possessed him, yet I'll speak to him."[7]

Here we have the belief in demonical possession of insane people. Later Sir Toby speaks of the treatment for Malvolio, "Come, we'll have him in a dark room and bound. * * *"

This speech indicates the methods used in dealing with urgent cases of insanity in Shakespeare's day.

Heinroth is probably the most representative writer of the eighteenth century psychological school, says Kellogg in the first chapter of his book on insanity.[9]

He taught that insanity was a result of disobeying the spiritual laws and not the physical laws, and that the spirit was the supreme influence on matter. Thus sin and a guilty conscience were the causes of insanity and could only be cured by complete faith and forgiveness of God.

Garrison, in the *Introduction to the History of Medicine*, writes of the eighteenth century treatment of insanity, "Bad as was the management of hospitals, the treatment of the insane was even worse. They were either chained or caged when housed, or if harmless, were allowed to run at large. The earliest insane asylums in the northern countries were Bedlam (1547), The Juliusspital at Wartzburg (1567), St. Luke's in London (1751), The Quaker or County Asylum near York (1792), and the "Lunatic's Tower" (1784) was one of the showplaces of old Vienna, where as in ancient Bedlam, the public were allowed to view the insane, like animals in a menagerie, on payment of a small fee."[10]

During the eighteenth and early nineteenth centuries a Linnean classification and naming is mentioned in diagnosing insanity. This was especially used in France to follow each psychosis to its genus and species.[11]

By this method of description and classification the patient's symptoms were carefully observed. If he talked in broken sentences that had no meaning to the listener, he was incoherent, and incoherence was put down as one of his symptoms to be later woven into the description of the psychosis which was then duly classified and finally named.

At about this same period, Garrison tells us, there was an extensive belief and use of drugs for the cure of insanity. An insanity case was considered incurable if the patient did not react to drugs. The following remedies are given mention: "Melancholia was treated by opium pills, excited states by camphor, pruritus by diaphoresis, and a mysterious power was ascribed to belladonna; if it failed, everything failed. Other remedies were a mixture of honey and vinegar, a decoction of Quadenwurzel water, or if this failed, "that panacea of psychiatry, tartarus tartarisatus. The costly cequa benedicta Rolandi with three stout ruffians to administer it, a mustard plaster on the head, venesection at the forehead and both thumbs, clysters, and plasters of Spanish fly, were other resources."[12]

It would appear from these remedies that many of the old concepts on insanity of the fourteenth century were carried over these five hundred years. A woman who appeared to have melancholia was treated with a volley of oaths and a douche of cold water. "If purgatives and emetics failed with violent patients, they came in for many hard knocks, with a regime of bolts and chains to inspire fear. Certain others form of mental derangement were treated by putting the patient in a cold, dark, and damp cell with a diet of hard bread and water. In some cases (presumably higher class families) the patients were sent to mineral baths." Marriage was also recommended, which treatment should definitely indicate to us the extent to which hereditary causes of insanity were misunderstood.[13]

Clearer ideas of the causes of insanity were introduced about the middle of the nineteenth century.[14]

Almost a hundred years ago (1847), in enumerating the causes of insanity, G. B. Wood mentions heredity as a most likely cause, and indicates it is more frequently the cause than all other causes put together. He even goes so far as to say the attack of insanity is likely to occur at the same period of life in the offspring as it did in the parent.

Sex, he says, apparently has no decided influence on insanity. He further states, "The natural constitution of the individual often

predisposes to insanity. Persons of the nervous and melancholic temperaments, are peculiarly liable to the disease. So also are those who have naturally any strong passion in excess, as ambition, pride, love of applause, etc.

"The rich and cultivated are more subject to it than the poor and ignorant. Their cerebral functions are, from their position and habits, more liable to over-excitement; while the irregular movements of their nervous systems want the control of regular and constant occupation."[15]

It is perhaps proper to say, that real understanding and progress in psychiatry, as we know it, did not begin until the opening of the twentieth century. Insanity has come to have a new meaning in the minds of individuals as well as physicians. "In recent years, however, there has been an awakening of interest," says Dr. William A. White, "which has developed the specialty of psychiatry more or less independently of other branches of medical practice. A traditional aversion toward those of unsound mind, shared by the medical profession, probably operated in no small degree to produce this effect. Among other factors which played a part in this independent development was the segregation of mentally disordered persons in public institutions that were more or less isloated and remote from other centers of medical work, and also from a conscious or unconscious isolation on the part of workers engaged in this special field of medical endeavor."[16]

Specialists in mental diseases have assumed, about the beginning of the present century, a more intelligent attitude toward the problem of insanity. The cost of the maintenance of state institutions for these mentally unsound has always been a financial burden. Those who are keenly aware of the situation justly maintain that, "the sum spent for research into the causes of disease and conditions resulting in the need of these institutions is negligible. The committee believes that research work in the field of mental disease and defect should be pursued aggressively on a much larger scale. In this way only can it be hoped to make available information that will prevent, in the future, a heavier burden upon the state."[17]

Not only has the attitude of mental workers changed, but their entire conception of the forms and treatment of mental diseases has undergone a vast change. A few of these general changes are recorded by S. E. Jelliffe and W. A. White, "In the last few years our conception of mental diseases has been almost revolutionized. Mania and melancholia as previously described are no longer looked upon as entities but as constituting phases of manic-depressive insanity. Paranoia is no longer considered as one of the most common psychoses. The cause of general paresis has been practically demonstrated. Our hospitals are full of dementia precox, a disease not described in any of the old standard works on psychiatry. Psychasthenia and many of the terms now used were entirely unknown a few decades ago. Melancholia is now spoken of as an involutional condition. We have discarded the Utica crib, the straight jacket, and the hypochermia, and have adopted hydrotherapy and many more modern methods of treatment. Even the construction of our institutions is radically different."[18]

As has been formerly stated, marriage was recommended in the past for the treatment of insanity. Today, marriage between persons with inherited strains of insanity presents the greatest problem in the control of mental diseases. In *Community Hygiene*, D. F. Smiley and A. G. Gould[19] state that about one half the cases of feeblemindness are caused directly by hereditary transmission. In controlling this predominating cause, T. H. Kellogg has suggested, "Heredity as a chief source might be diminished in a measure by the enactment of wise marriage laws."[20]

However, the passing of such marriage laws in any state is very difficult. The public in general cry out against any encroachment

in any measure upon their rights as citizens in a democratic country. The least that can be said is that marriage of a person from a family whose stock is tainted with insanity is definitely inadvisable, especially if the families of both individuals have a strain of insanity.[21]

The American Medico-Psychological Association classifies the old term melancholia, and hence insanity, into eleven groups as follows: syphilitic, feeble minded, epileptic, alcoholic, focal brain, bodily disease, senescent, dementia, precox, manic-depressive, hysteric and psychopathic.[22]

Each of these divisions is in turn subdivided, and the modern specialist treats each case according to its specific symptoms with due attention to the slightest differences. This classification, says Dr. Southard,[24] is the key of the young psychiatrist today, and this logical classification of mental diseases marks one of the great improvements in the history of the subject; yet this classification is imperfect in many respects, because, as Dr. Southard[25] further explains, it is so easy for any indicated symptom to lead a diagnostician in any one of these main diagnostic directions.

In discussing the methods of present treatment of insanity, D. H. Brower and H. M. Bannister[26] tell us that the indications for treatment are about the same whether the patient is treated at home or in an institution for the insane. The most common problems to be dealt with are general excitement, morbidity, deprivation of food, stupor, sleeplessness from over excitement, and general derangement of the entire organic system—often causing poor elimination.

Warm baths (about 98°) are often effective in quieting the excessively excited patient. Such baths followed by some hypnotic are used in the more acute cases. In some instances the warm baths alone, continued for about twenty minutes before retiring, will produce restful sleep. Sleep and rest are of vital importance in building up the mind as well as the body. If the case is apparently unresponsive to a warm bath, cold applications to the head, while the patient remains in hot water, are to be recommended, and under the combined treatment sleep is often produced. Sometimes it is advisable to give the patient a glass of warm milk or even an alcoholic night-cap. However, the latter should be given with caution, so as not to excite any alcoholic habit.

Acute cases, where the patient does not sleep for days, must be treated with hypnotics. One of the most reliable of these is phenobarbital. This may be used safely in doses of from one to five grains. Other hypnotics used in the present treatment are chloral, used in doses of 10 to 20 grains. Paraldehyde is another commonly used hypnotic. Opium and morphine are used only as a final resort in rare cases where the patient is suffering from apparent distress and acute pain. In less acute cases doses of sodium bromide are effective without any danger.

It is important to remember in administering hypnotics not to rely upon them entirely in the patient's treatment. Perhaps after one night of restful sleep under the influence of a hypnotic, nature will provide natural sleep thereafter.

Refusing food is perhaps one of the most common symptoms in many insanity cases. The patients are in some instances too excited to eat. Here, the patient is first given something to quiet his nerves (baths, hot and cold applications to the head, doses of sodium bromide and other remedies), and then the attendant may be able to administer food successfully to the patient. However, there are stubborn cases in which artificial feeding by means of the stomach tube must be resorted to.

Regular elimination is also of vital importance in caring for a mentally defective patient.[27]

In certain emergency cases various treatments are suggested. A tendency to suicide must be watched incessantly. Sometimes this tendency is only a prelude of insanity, and

can be cured with careful treatment. "An emergency which is fatal in a considerable per cent of acute attacks of mental disease is general exhaustion of vital powers, which often escapes notice, owing to a false show of strength on the part of the patient who may walk about the very hour in which he falls in final collapse."[28]

The chief symptoms are haggard looks, irregular heart action, and subnormal temperature. These patients should be "put in the recumbent posture, warmed by artificial heat, nourished by concentrated liquid food in small and frequent quantities, and given strychnine hypodermatically if cardiac failure is imminent."[29]

The surroundings of a mentally defective patient are important in their treatment. Only for therapeutic purposes should padded cells be used. Here, their use is practically indispensible. However, seclusion should be used with the greatest caution. D. W. La-Rue comments as follows: "For the mentally diseased we must seek suitable environment, physical and mental. This means, for the most part, an environment of pristine simplicity within some haven of rest. The most adaptable kindness must be found there, with as little restraint as may be. The patients ought to be dealt with honestly in every particular, frankly told that they are mentally ill, and encouraged to recognize real conditions and face them openmindedly. Their sane friends and relatives should treat them sanely, keep them in touch with reality and attached to life."[30]

Occupation may be provided for those mentally diseased, as far as they are able to follow instructions and have motor control. Amusement adapted to their specific symptoms may be provided. Good clothing, and music as well as religion and prayer create a better frame of mind, according to Dr. La-Rue.[31]

It is of utmost importance for the patient to remain in the institution in which he is being treated until the physician assures both him and his family that he is in a fit condition to be removed. Often family sentiment tends to hasten the removal of a patient before he is fully recovered. "Recovery from insanity is often apparent before it is real, and though importuned by relatives the practical alienist will not return the patient to business and social life prematurely, and run the risk of a relapse and possible incurability."[32]

Do the results of our modern methods of control and treatment justify the vast amount of time and money spent in research and in the maintenance of state institutions? This question answered itself twenty-five years ago in the following report from New York State by Dr. White and Dr. Jelliffe: "Of the 3488 patients discharged from the New York state hospitals for the insane during the year ending September 30, 1910; 1588, or 45.6 per cent, were discharged as recovered; and 1250, or 35.8 per cent, as improved; only 18.6 per cent, remained unimproved."[33]

The science of psychiatry is in its infancy. Much has been learned, more is conjectured, but most is yet to be done before we can say with any confidence that we understand the workings of a normal, much less an abnormal mind. The public can only hope that the trend indicated in changing from bolts, blows and "a volley of oaths" to the comparatively sympathetic treatment of a warm bath plus a cold towel to the head, may in time arrive at a complete grasp of the cause and a really intelligent cure for mental disease.

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LIP READING

Of the more than 122 million people in this country, more than 10 million, or about 1 out of every 10, have measurable hearing defects. Or, to state it differently, there are approximately 55,000 persons who are totally deaf. About 1 person out of each thousand is blind. For each person who is totally deaf or blind, there are 60 who are hard of hearing. Impressive statistics on "The Deaf and the Deafened" are given by Dr. Ray Lyman Wilbur in his article on that subject in the October *Hygeia*.

The adult person who becomes hard of hearing must readjust his whole life. One of the greatest factors in this process of rehabilitation is lip reading. Lip reading now comprises a special department of the National Education Association. It is being taught in nine of the great universities of this country. There are 561 teachers of lip reading among deafened adults; ninety-six cities offer children instruction in lip reading as the greatest aid in helping the isolated to conquer their fears and ears. One might converse for an hour with an expert lip reader without being conscious of his deafness.

CASE REPORT

TETANUS*

By A. A. SMITH, M. D.
Clay, W. Va.

ON February 8, 1932, I was called to see Bessie Cummings, Paxton, West Virginia, age 22, white, female, divorced. Occupation, house work. She was the mother of two children, ages 8 and 9, both healthy.

The father of the patient was age 60, the mother 65, and both in good health. There were five brothers and two sisters living and in good health. Two sisters were dead, one dying during childbirth and the other with pneumonia.

The parents told me that the patient began to have convulsions on January 25 and had had them every day since, lasting from 10 minutes to one and one-half hours. I noticed the right foot was extended and drawn to one side. The right patellar reflex was exaggerated. The temperature was 100 degrees.

The convulsions were spastic in character. Some times the knees would be drawn up to the patient's chin and at other times the head and feet extended occupying opisthotonas position. She had trismus of jaw muscles, it being necessary to keep a piece of wood between the teeth to hold the jaws apart. The ends of some of the teeth had already been broken off.

The patient's mind was clear. In her face could be seen an expression of worry and apprehension, but she would answer questions satisfactorily.

On December 20, 1931, the patient's tonsils had been removed in a Wheeling hospital.

Upon questioning the family relative to injuries, they stated that the patient had

*Read before the Kanawha Medical Society on April 12, 1932.

punctured her right foot with a nail on January 5, this being 20 days previous to her first convulsion. I was unable to find any pus at the sight of the injury. Previous to my call, the county health nurse had a blood test made and found it two plus.

The next day, February 9, I gave 10,000 units of antitetanic serum intramuscularly and 10,000 intravenously. The parents were requested to remove the patient to a hospital. She had no more convulsions until the next day when she had a light attack on the way to the hospital.

On February 10 the patient was admitted to the Dr. Lewis Pritchard Clinic at Charleston. At 10 o'clock a. m., the temperature was 101, the jaws stiff and the patient unable to talk. At noon spinal fluid was withdrawn, 10,000 units of antitetanic serum given intraspinally and 20,000 units intravenously. A Kahn test of the spinal fluid showed one plus. At 6 p. m. the patient was semiconscious and suffering with headache.

On February 11, the temperature was 100 at 6 p. m., the patient seemed more rational and was resting fairly well.

On February 12, the temperature was normal and the patient was feeling generally better.

On February 16, the patient was up and about; she was given a regular diet and was discharged from the hospital.

After the patient returned home she went along all right until February 18, two days after returning from the hospital, when she commenced having more convulsions. These were controlled by using ammonia inhalants. As her general health was improving and as there was no involvement of the jaw muscles, we did not give any more serum.

The patient had convulsions every day until March 24. Since then there have been no more convulsions and the patient is now going about attending to her work.

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

The coexistence of tuberculosis and mental disease in the same patient is none too rare and presents difficult problems to the practitioner. Without conscientious and intelligent response to instructions on the part of the patient, the prognosis for the tuberculosis cannot be good. A mentally uncooperative patient cannot be depended upon to prevent the spread of his tuberculous disease to others. What disposition had best be made of such a patient? There is also the common belief that there are certain biological factors responsible for the coexistence of the two diseases, based, probably, on the observation that the death rate from tuberculosis in institutions for the care of patients with mental diseases is extraordinarily high. A recent study of the coexistence of mental disease with tuberculosis, made in a large hospital, casts light on this subject. Abstracts of the report follow.

Tuberculosis and Mental Disease: At the Longview State Hospital for Mental Diseases in Cincinnati there has been a tuberculosis death rate for the past few years of 0.7 per cent. This is more than ten times the rate for the state as a whole. Even higher rates are found in other mental hospitals. Patients with dementia praecox so often die of tuberculosis that some writers consider the "schizoid type" as "constitutionally predisposed" to phthisis. Others maintain that dementia praecox may be itself a peculiar manifestation of tuberculosis infection. Lowered resistance due to institutional conditions and increased exposure to massive infection have also been considered important factors.

Clinical examination of 2,200 patients at the Longview Hospital led to the discovery of 68 pulmonary tuberculosis cases. Due to inadequate facilities such patients were found in more than a half dozen wards. The number of cases compares favorably with other hospitals in the state but undoubtedly it would be increased by more thorough examinations utilizing laboratory and x-ray criteria more freely.

Only 10 per cent of the tuberculous patients had been admitted since the beginning of last year

as compared with more than 20 per cent of non-tuberculous patients admitted during the same period. This seems to indicate that the incidence of the disease increases with the duration of confinement in the institution. The tuberculous patients averaged less than 35 years of age while the average age of all patients in the institution is more than 40 years.

Incidence of the disease was lower among the senile and syphilitic groups and higher among the patients with so-called "constitutional psychoses." Patients with tuberculosis, especially those in the male tuberculosis ward, do not appear to be underweight probably because of special nutrition efforts. Dementia praecox patients showed little more tuberculosis than did those with manic-depressive psychoses, although their nutrition did not appear to be as well maintained.

Body Build: The relative width of the body pelvis gives one of the simplest and most constant indices of body build. The relative width of the bony pelvis of tuberculosis patients at Longview was slightly narrower than that of the entire patient population, but little different than that of the other patients of the same age. Dementia praecox patients appeared narrower than those with manic-depressive psychoses, but when only patients in the same age group are compared the differences in body build between the various types of mental disease, as shown by this index, vanish.

It seems clear that the incidence of clinical tuberculosis in this hospital increases with the length of stay in the institution, but is not appreciably affected by body build or type of psychosis. The deduction, after eliminating all known factors, is that the tuberculous disease develops not as a result of the mental disease *per se*, or as its cause, but from the condition of confinement and exposure to infection resulting therefrom.

Incidence of Infection: The entire hospital population was tested with tuberculin. For safety and convenience in dealing with unruly patients the Pirquet technique was used throughout, scarifying through Old Tuberculin with the Pirquet chisel on the flexor surface of the left forearm and reading in 48 hours with a check reading in five days. A few positives missed by the Pirquet technique might have been revealed by larger doses of tuberculin given intracutaneously but not sufficient to make any significant differences in this study.

There were marked differences in the incidence of the reactions on different wards, more than a quarter of patients in admitting wards being completely negative, while on the wards containing active cases of the disease less than half that number failed to react. Less than 20 per cent of the patients on the admitting wards showed a strongly positive reaction as compared to more than twice that number on the remaining wards and an even higher proportion on the wards in which patients with active tuberculosis were clinically recognized.

There were striking differences in reactions, according to length of time patients had been at Longview. More than a quarter of patients admitted during the past five years gave negative tests while of those admitted prior to that time, only one-sixth are now negative to this test. Increase in postive reaction with increase in duration of stay in the institution is marked among both men and women. Mere increase of age is not responsible for increased incidence of postive reactions because new admissions average a somewhat higher age incidence than do the surviving population of the hospital, and examination of patients of various ages shows little tendency to increase in positive reactions among the older groups.

Apparently the hazard of becoming infected with tubercle bacilli while in the mental hospital is much higher than it is in the general population.

Attempt at segregation of tuberculous patients at the institution, admittedly inadequate as it is, during the past few years has been marked by a drop in the mortality rate. Even greater success is presaged if the policy of segregation of active cases is more thoroughly carried out. The doctrine of "constitutional types" underlying predisposition to mental diseases and to tuberculosis is not supported by this study.

Tuberculosis and Mental Disease, Emil Bogen, Esther Bogen Tietz, and Major Frank Grace, Am. Rev. of Tuber., September, 1934.

KEROSENE AND HEAD LICE

A reliable procedure in eradicating the head louse, according to Dr. Claude Lillingston, whose serial, "Our Parasites," continues in the October *Hygeia*, is to wash the head and hair thoroughly with equal parts of kerosene and vinegar. The head is then kept wrapped in a towel for several hours.

PRESIDENT'S PAGE

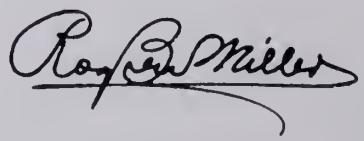
Society Programs

About three years ago a decided change began to be noticed in county medical society programs. The trend began to drift away from the old routine of scientific papers. More and more, economic subjects began to be taken up for discussion. Through the depression, as medical incomes fell off, the study and discussion of medical economics came to the forefront.

This trend was a logical and much needed departure for the county medical assembly. The advent of medical economics as a topic for discussion played a considerable part in awakening the profession to the need for efficient organization and group action. The trend toward medical economic subjects has done much to cement and build up the county, state and national medical organizations.

As valuable as this economic trend has been to organized medicine, it is our humble opinion that the subject is now being overplayed. In many of our own county societies we have seen a virtual end of scientific presentations. The complete programs have been usurped by medical economics. The over-emphasis, we believe, may undo much of the good that has already been accomplished. We still feel that the scientific side of medicine is the primary function of a county medical society, and that it should not be overshadowed by economic issues.

Now that the ground swell of economic issues is quieting down, we suggest that we get back in the old harness and temper our economic enthusiasm with the old desire for scientific attainment.



President.

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MEDICAL SPEECH

Those who were privileged to hear the address of Dr. James S. McLester, president-elect of the American Medical Association, before the conference of secretaries and editors were fortunate indeed. If it were printed in every medical journal in America and read twice by each member of the profession, medical meetings would be speeded up, made peppier and more interesting, and the labor of the medical editor would be tremendously simplified.

The address, which might well be designated the oktologue of medical language, we summarize for the benefit of our readers.

(1) Unless thoroughly familiar with your subject in detail and perfectly at ease on your feet, do not try to speak extemporaneously but write out what you have to say.

(2) The writing of good medical papers is not an easy task. Write and rewrite; revise and re-revise. Choose your language carefully and make it express your meaning clearly and explicitly.

(3) Be brief. Boil your paragraphs down. Half the volume of medical papers could be eliminated without marring the thought expressed.

(4) Read over your manuscript often enough to be entirely familiar with its contents, so that the proper words may be emphasized and there may be sufficient animation in your delivery to hold the attention of the audience.

(5) Speak clearly and distinctly.

(6) Discussants should think over what they wish to say before rising. In discussion, don't ramble. Have something to say, say it, and sit down.

(7) Presiding officers can expedite the presentation of a program markedly by calling time when it is up and by insisting that speakers confine their remarks to the subject under discussion.

(8) If your paper is to be published, go over it carefully as to spelling, punctuation, capitalization, and paragraphing. The editor can do this for you, but he prefers to have you do it yourself.

DR. SPRAY HONORED

Professor Robb Spalding Spray, of the department of medical bacteriology and public hygiene in West Virginia University, has been recently requested by members of the Pasteur Institute of Paris, France, to contribute an article reporting his experimental study on animals, and case reports on clinical trials of the methyl antigen of nègre and boquet, as prepared by him in the medical school labroatory, and supplied to the physicians of West Virginia.

Responding to this invitation Professor Spray is contributing this article on tuberculosis, which will be then published under the auspices of the Pasteur Institute in France. This paper will report all of the experimental work in the medical school, which was presented before the state medical society at its Fairmont meeting in 1928, and in addition will contain reports of clinical trials as submitted by the physicians to whom this antigen was supplied by the university service.

A NEW SCHOOL PROGRAM

The advisory council of the Cabell County Medical Society has worked out and submitted to the Cabell county board of education a new school health inspection plan which will probably be initiated on November first. As the plan is something of a de-

parture from the old "school doctor" system we present below the essential details.

Under the Cabell plan, the county will be zoned into 10 districts, seven in the city of Huntington and the remaining three in Milton, Barboursville and the extra-urban area. In Huntington, from three to five schools will be included in each district. In each of these districts there will be appointed from members of the Cabell County Medical Society one medical inspector whose primary function will be to reduce the spread of communicable diseases within the schools.

Each medical inspector will be required to be on duty at a designated place in his district on each school morning from 9 until 10:30 o'clock for the purpose of giving a medical opinion on the pupils referred to him as possible health suspects with communicable diseases. He will also be required to assist in the control of epidemic diseases in the schools when such emergencies arise, in such a reasonable manner as may be indicated by the advisory health council.

The medical inspector will not do personal immunizations in the schools, nor will he practice medical relief. Also he will not carry on an elaborate examining of school children. The object of the plan, as stated by the advisory health council, is primarily the prevention of the spread of communicable diseases within the schools.

On the opening of school each morning the teacher will hold an inspection and those suspected of being ill or having communicable diseases will be referred to the principal. The principal, in turn, will refer such children to the medical inspector in that district and the inspector shall decide whether or not it is safe for the children to be in school. The medical inspectors are responsible to the school board and act as representatives of the school board.

According to the Cabell county plan, each inspector is to be paid $500 for the school year of nine months. The inspectors are to be employed by the school board and will work in accordance with rules and regulations laid down by the advisory health council of the Cabell County Medical Society. All members of the Cabell society have been invited to make formal application for these positions.

ADVERTISING INTEGRITY

We were pleased to see the good *Journal of the American Medical Association* take a recent slap at the "throw-away" medical publications that thrive on questionable advertising. It was pointed out that 85 per cent of the advertising in one such publication dealt with products that were not approved. "Throw Away" publications, by the way, are those that are sent out free to physicians and which derive their profit on a large volume of advertising which is secured through a large circulation figure.

The *A. M. A. Journal* particularly mentioned medical economics as one of the "throw-aways" that placed cash above conscious in medical practice. A perusal of one of the late issues of *Medical Economics* brings out some interesting observations. For example the issue in question contains 148 pages, of which approximately 100 pages are advertising matter. Looking through the 100 pages of advertising, we find 10 A. M. A. seals of acceptance.

We cite the above chiefly for the purpose of calling attention to the merits of our own WEST VIRGINIA MEDICAL JOURNAL as a dependable source of advertising information. Every product advertised in the JOURNAL has the A. M. A. stamp of approval. Not only that, this JOURNAL is owned, written and maintained by the doctors who read it. It belongs to your association, of which you are a member. If we advertised unreliable or unethical products, perhaps you would be one of the first to protest.

We have urged the association members on various occasions to support the manufacturers, supply houses and institutions that advertise in this JOURNAL. The best proof that our request has been heeded is the large volume of advertising which we carry from

month to month. Again we renew our plea. Remember that this Journal has shown a consistent profit for the past eight years. That profit has been used to promote and protect the welfare of the doctors in this state. The best way to maintain that profit is to favor those who do advertise in the Journal, especially when other considerations are equal.

INCREASED MILEAGE ALLOWANCE

The Medical Relief Committee of the West Virginia State Medical Association, early in October, announced an increase in mileage for medical relief cases from the old allowance of five cents to 10 cents on hard surfaced roads and to 15 cents on dirt roads. This increase became effective on October 15 and a bulletin to each county administrator, authorizing the increase, was sent out on that date.

The state committee feels that this mileage increase will solve many of the problems that have been coming up from time to time. The old rate of five cents was hardly adequate for even the most favorable travel conditions and was vastly inadequate on most of the rural county roads. Some county administrators drew on the "discretionary allowance" to make up for unusual mileage conditions; others did not. Misunderstandings were so frequent that the state committee took the matter up with the West Virginia Relief Administration and the new uniform mileage rates were agreed upon.

A second accomplishment of the state medical relief committee in the past month concerned the issuance of work relief checks for medical service direct to the patient, rather than to the doctor who performed the service. In the past it has been the practice in most of the counties to issue such work relief checks direct to the relief employee. Many doctors justly complained that these checks were not endorsed over to them. An order was issued on October 15 directing that all work relief checks for medical service be turned over to the attending physician, and not to the employee.

In sending out the mileage increase bulletin to association members, the state committee took the opportunity to express a rather definite policy concerning medical relief cases. We quote as follows:

"For the duration of the present emergency, the doctors are willing to help out by caring for relief recipients at the agreed fees.

"As the fees for relief work are one-half, and in some instances less than half, of the regular fees, the doctors are not anxious (though still willing) to receive relief calls.

"Relief administrators in many counties are authorizing relief calls that are not actual emergencies. This should be frowned upon by the medical profession. Every doctor should assume the attitude that he is willing to help out, at the reduced fees, in actual emergencies but he does not want the administrators to take advantage of his generosity by authorizing non-emergency calls.

"Regular weekly or bi-weekly conferences between the county administrator and the county society relief committee will usually result in ironing out such problems as the above.

"Your individual problems should be taken up with your county society committee on medical relief. If you fail to get what you consider a satisfactory adjustment, then send in your complaint to the state committee and it will receive prompt consideration.

"Whether you like or dislike the medical relief program, remember that it is our nearest approach to state medicine and it behooves every doctor to guide rather than fight this federal appropriation of funds for medical relief.

"The chief objective of the association committee on medical relief is to gradually cut the appropriation by eliminating non-emergency calls, to secure more adequate remuneration for real emergencies and to maintain control of the medical service rendered until the present emergency no longer exists."

COUNTY SOCIETY NEWS

McDOWELL COUNTY

The McDowell County Medical Society met in regular session in the Appalachian Community Room, Welch, on the evening of October 10 with Dr. H. T. Schiefelbein, president, presiding. The entire evening was given over to Dr. F. C. Hodges, Huntington. There were present, representatives of the Auxiliary and the McDowell County Womans Club.

H. A. BRACEY, *Secretary.*

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of October 9, with a good attendance. The essayists of the evening were Dr. John W. Moore and Dr. R. L. Anderson, both of Charleston. Dr. Moore spoke on the subject, "The Necessity for Complete Physical Examinations Regularly," and the discussion was opened by Dr. Hugh G. Thompson. Dr. Anderson spoke on "Backache" and discussion was opened by Dr. E. B. Henson.

A special meeting of the society was held on the evening of October 23 at the Daniel Boone Hotel with Dr. C. C. Mechling, Pittsburgh, as the guest speaker. His subject was "Carcinoma of the Rectum," and a liberal discussion followed.

ANDREW E. AMICK, *Secretary.*

Personal:—Dr. H. K. B. Allebach, formerly of the Mayo Clinic, Rochester, Minnesota, assumed charge of the clinical and pathological laboratory of the Charleston General Hospital on October 1.

MONONGALIA COUNTY

The tenth regular meeting of the Monongalia County Medical Society was held at the Hotel Morgan, Morgantown, on the evening of October 2, and opened with a dinner at 6 o'clock. Following this the meeting was called to order by Dr. B. M. Stout, president, and committee reports were presented. During the business session it was pointed out that an effort should be made to place the county and city hospitals of Morgantown on the approved list of the state crippled childrens' committee. The society also voted to purchase a projecting lantern for future meetings.

It was suggested during the meeting that the Monongalia county doctors take Thursday afternoons and evenings off from office hours throughout the winter months. This came in for considerable discussion but was voted down. By unanimous vote the society decided that special business meetings should be held when necessary, at the discretion of the officers.

The essayist of the evening, Dr. Edwin J. Stedem of Columbus, Ohio, was ill and could not be present. In his absence, Dr. J. C. Pickett talked and gave a lantern slide demonstration on "Osteochondrosis." This was quite interesting and brought forth a number of questions.

There were 24 members and four visitors.

G. R. MAXWELL, *Secretary.*

FAYETTE COUNTY

The September 18 meeting of the Fayette County Medical Society was held at the White Oak Country Club at Oak Hill with members of the Kanawha, Raleigh and Central West Virginia medical societies as guests. After a bountiful dinner the meeting was called to order by Dr. W. P. Bittinger, president, and the essayist was introduced by Dr. George Fordham of Powellton.

The essayist was Dr. R. R. Sayers, Washington, D. C., who gave a splendid talk on "Industrial Hygiene." He discussed many of the new problems of safety and prevention of occupational diseases. A free discussion followed. Mr. Strobel, county relief administrator, and Dr. Price of the state health department also spoke on relief and nursing work.

The October 9 meeting of the society was held at the Hill Hotel, Oak Hill, and was called to order by Dr. W. P. Bittinger, president. The speakers were Mr. Ralph Strobel, acting county relief administrator, and Mrs. Kathryn Trent, of Charleston, director of health and nutrition. Mr. Stroebel talked on the relationship between the relief administration and the practicing physician. Mrs. Trent spoke on "The Place of the Nurse in a Relief Program."

Dr. G. G. Irwin, Charleston, member of the medical relief committee of the state association, was present and discussed many of these problems from the standpoint of the general practitioner. He gave a resume of the work that has been attempted and accomplished by the state committee. Following Dr. Irwin's talk, on motion of Dr. Hogshead, the old county medical relief committee was dis-

missed and a new committee appointed by the president, consisting of Dr. M. F. Raine, Fayetteville, chairman; Dr. S. W. Price, Scarbro and Dr. Ralph Hogshead, Montgomery.

RALPH HOGSHEAD, *Secretary.*

RALEIGH COUNTY

The regular bi-weekly meeting of the Raleigh County Medical Society was held on the evening of September 20 at the Black Knight Country Club, Beckley. Dr. A. M. Price of Charleston, director of rural sanitation of the state board of health, and Dr. J. E. Blaydes of Bluefield were the scientific essayists.

Dr. Price talked on the subject "Arrangement and Fees of the Emergency Relief Administration and Relief Nursing." He was followed by Dr. Blaydes who gave a most interesting paper on "Blindness from the Standpoint of the Practitioner." The scientific program was highly enjoyed by all present. In addition to the speakers, the society had several relief nurses as guests. A dinner preceded the meeting.

L. M. HALLORAN, *Secretary.*

MERCER COUNTY

The October 11 meeting of the Mercer County Medical Society was held in the Memorial Building, Princeton, with a good attendance and a number of visitors present. The essayist of the evening was Dr. E. Bennette Henson, Charleston, who gave a short talk on "Anterior Poliomyelitis," giving part of his experiences and a personal discussion of his talk with Dr. Aycock of Boston. Dr. Henson then gave a talk on "Backache" showing numerous films before and after treatment.

Following Dr. Henson, Dr. Weldon Harloe of Matoaka gave the histories and talked on the recent cases of poliomyelitis at Matoaka. Both talks were freely discussed and enjoyed by everyone present. Following adjournment the society enjoyed a Dutch luncheon.

R. R. STUART, *Secretary.*

OHIO COUNTY

Dr. W. W. G. MacLachlan of Pittsburgh was the scientific essayist at the October 5 meeting of the Ohio County Medical Society which was held in the solarium of the Ohio Valley General Hospital. His subject was "Some Experimental and Clinical Observations on Pneumococcic Pneumonia." The discussion was led by Dr. W. M. Sheppe, Dr. W. T. McClure, Dr. H. G. Little and Dr. R. J. Snider.

A motion picture film of unusual interest on "The Science and Art of Obstetrics," prepared by Dr. Joseph B. DeLee, chief of the Lying-In Hospital, Chicago, was presented to the society at its October 19 meeting.

RUSSELL C. BOND, *Secretary.*

CABELL COUNTY

Dr. Ray M. Bobbitt, Huntington, was elected president of the Cabell County Medical Society at the regular meeting on the evening of October 11. Dr. Bobbitt will succeed Dr. W. W. Strange, who has had a most efficient administration during the past year.

Other officers elected were Dr. William F. Beckner, vice president; Dr. Edwin Matthews, re-elected secretary, and Dr. Edwin J. Humphreys, treasurer. Dr. J. S. Klumpp was elected to the board of censors. Delegates elected to the state meeting were Dr. R. J. Wilkinson, Dr. R. M. Sloan and Dr. F. C. Hodges. Alternates were Dr. I. I. Hirschmann, Dr. R. M. Wylie and Dr. W. C. Swann.

The October 11 meeting was held at the Huntington State Hospital where the members of the Cabell society were guests of Dr. C. T. Taylor, superintendent, at dinner. The scientific program consisted of a clinic on endocrinology conducted by Dr. E. F. Reaser and Dr. C. S. Duncan of the hospital staff. Other guests included Mr. J. A. Chambers and Colonel John Baker White of the state board of control.

EDWIN MATTHEWS, *Secretary.*

PARKERSBURG ACADEMY

The regular scientific meeting of the Parkersburg Academy of Medicine was held at the Trinity parish house on the evening of October 4 with a dinner served to the members and guests at 6:30 o'clock. The scientific program was presented at 8 o'clock.

Dr. Joseph Earle Moore, associate in medicine at Johns Hopkins University, was the essayist of the evening and presented a most interesting paper on "The Wassermann-Fast Patient." Discussion was opened by Dr. Walter E. Vest, Huntington, and a general discussion followed. This was a splendid and instructive meeting with a good attendance.

WELCH ENGLAND, *Secretary.*

GENERAL NEWS

CONFERENCE ON BLINDNESS

The annual conference of the national society for the prevention of blindness will be held in New York City December 6-8, it is announced by Lewis H. Carris, managing director.

Dr. Edward Jackson of Denver, Colo., dean of American ophthalmologists, will deliver the principal address on the subject, "A Wide Basis for Blindness Prevention." Dr. Jackson was the first recipient, in 1925, of the Leslie Dana gold medal which is awarded annually for outstanding achievements in the prevention of blindness and conservation of vision.

Among the topics that will come up for discussion at the conference will be: the causes of blindness; sight-saving classes for children with seriously defective vision; prevention of eye accidents; and prevention of prenatal infections which may cause blindness.

VENEREAL DISEASE INFORMATION

Venereal Disease Information, monthly publication of the United States Public Health Service, is now being offered to the medical profession at a subscription rate of fifty cents per year. Heretofore the circulation of the bulletin has been confined mostly to health units, medical libraries and medical societies. The chief purpose of the publication is to keep the medical profession abreast of the modern advances in venereal disease work.

Subscriptions should be sent to the Surgeon General, U. S. Public Health Service, 16 Seventh St., S. W., Washington, D. C.

HOSPITAL MEETING

The ninth annual meeting of the Hospital Association of West Virginia was held at the Hotel Morgan, Morgantown, on the morning, afternoon and evening of October 5, with an attendance of approximately fifty members. One of the most important things to come out of the Morgantown session was the decision on the part of the hospital association to employ a full-time executive secretary with a permanent headquarters for the association in Charleston. It is understood that steps are now being taken to finance the plan and put it into operation.

Some of the papers presented at the hospital meeting included the president's address, "Sterilization of a Particular Class of Patients," by Dr. T. K. Oates, "Sane Hospitalization and Treatment of the Insane," by Dr. J. E. Offner, superintendent of the Weston State Hospital, "Anesthesia in West Virginia," by Dr. Eldon B. Tucker, Morgantown, and "Relationship Between Operating Room and Laboratory," by Dr. W. T. Gocke, Clarksburg. Dr. W. S. Fulton, Wheeling, was the banquet toastmaster that evening and short talks were made by the officers.

Dr. James R. McClung, Richwood, was elected president of the hospital association to serve during the coming year. He succeeds Dr. Oates. Dr. E. F. Heiskell, Morgantown, was named as vice president and Mr. Charles Warner, Charleston, was named to serve as secretary until a full-time executive could be employed.

SOUTHERN MEDICAL MEETING

The twenty-eighth annual meeting of the Southern Medical Association will be held in San Antonio, Texas, on November 13-16. The first two days will be occupied with clinical sessions and the last two days will be given over to sectional meetings. The scientific and technical exhibits promise their usual interest.

The last Texas meeting of the Southern Medical Association, in Dallas in 1925, was the largest in the history of the society and indications are that the San Antonio meeting will eclipse the 1925 gathering. One of the features of the convention will be a post-meeting trip through Mexico which is being arranged by Mr. C. P. Loranz, secretary-manager. Complete information in regard to the convention and tour may be secured by writing Mr. Loranz at the Empire Building, Birmingham, Alabama.

RADIOLOGICAL MEETING

The Radiological Society of North America will hold its next annual meeting at the Hotel Peabody, Memphis, Tennessee, December 3-7, 1934. The medical profession is cordially invited to attend. Further information may be obtained by addressing the secretary-treasurer, Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, New York.

WOMAN'S AUXILIARY

EXECUTIVE BOARD MEETING

The fall meeting of the executive board of the Auxiliary to the West Virginia State Medical Association was held on Wednesday, October 3, 1934, at Parkersburg. Mrs. M. F. Petersen, president, called the meeting to order and asked for the reports of the various chairmen who were present. Plans for the year were made after which a discussion of old and new business was held. Luncheon was served to the board by the members of the Parkersburg Academy Auxiliary following which the meeting was adjourned until the preconvention meeting which is to be held in Wheeling in the spring.

The following were in attendance:

Mrs. M. F. Petersen, president; Mrs. S. M. Prunty, president-elect; Mrs. Howard T. Phillips, past president; Mrs. J. W. Gilmore, 1st vice president; Mrs. J. S. Klumpp, recording secretary; Mrs. O. L. Aultz, corresponding secretary; Mrs. V. E. Holcomb, chairman state and convention programs; Mrs. R. S. Coffindaffer, hygeia chairman; Mrs. M. I. Mendeloff, chairman public relations; Mrs. A. D. Knott, chairman legislation and revision; Mrs. A. H. Stevens, parliamentarian; Mrs. H. P. Evans, chairman press and publicity; Mrs. O. H. Bobbitt and Mrs. R. U. Drinkard.

CABELL COUNTY

The Auxiliary to the Cabell County Medical Society met on October 8, 1934 at the home of Mrs. Wes C. Thomas. Mrs. Gilbert A. Ratcliffe, president, presided over the meeting with twelve members present.

In the absence of Mrs. Klumpp, the president reported to the members on the Parkersburg meeting. During the business session, the Auxiliary voted the sum of $15 to be donated to the Community Chest fund. Before adjourning, the Auxiliary decided to meet again on November 12, 1934, at the home of Mrs. Edward Rose.

PARKERSBURG

The Auxiliary to the Parkersburg Academy of Medicine met on October 2, 1934 at the home of Mrs. W. B. Richardson. Twenty-two members were present for the one o'clock luncheon and business session which followed.

The new officers of the Auxiliary were installed and during the installation a floral tribute was presented to Mrs. Richardson in appreciation of her services to the Auxiliary as president during the past year. Mrs. E. C. Hartman took up her duties as the Auxiliary's new president at this meeting. The Auxiliary passed a resolution to sew for the hospitals every Tuesday afternoon. Chairmen and co-chairmen were named for the committees which are to sew at St. Joseph's and the Camden hospitals. The Auxiliary also made plans for a tea to be given in honor of visitors and delegates to the West Virginia State Nurses Association meeting in Parkersburg on October 18, 19 and 20.

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society held its first fall meeting on September 25, 1934. Mrs. Amos H. Stevens, president, presided over the meeting which was attended by 24 of the members.

During the program, Mrs. S. S. Hall read a synopsis of the history of the formation and development of the West Virginia State Medical Association, which had its beginning in Fairmont in 1867. Mrs. W. A. Welton reviewed the current issue of *Hygeia*, pointing out to the members the articles to which they should give attention.

Mrs. Stevens announced the following committee chairmen:

Mrs. L. R. Lambert, program committee; Mrs. W. A. Welton, historian; Mrs. C. T. Francis, public relations; Mrs. D. A. Watkins, Hygeia; Mrs. E. P. Smith, membership committee; Mrs. J. R. Tuckwiller, telephone; Mrs. C. L. Parks, legislative.

BEATRICE GOULD THOMAS, *News Reporter.*

KANAWHA COUNTY

The Auxiliary to the Kanawha County Medical Society met on October 9, at the home of Mrs. O. H. Bobbitt, president. Twenty-one members and three guests were present. During the meeting Mrs. Randolph L. Anderson spoke to the Auxiliary on "First Twelve Years of Work of American Medical Auxiliary." Mrs. V. T. Churchman, Jr., discussed the current issue of "Hygeia."

Plans for a benefit bridge to be given at the Appalachian Club Rooms on October 29, 1934 were announced. Proceeds from this bridge are to be used to buy *Hygeia.*

After a pleasant social hour the meeting was adjourned until a later date.

OBITUARIES

DR. WILLIAM F. FARLEY

Dr. William Floyd Farley, 68 years of age, died at his home at Holden on September 26 of myasthenia gravis. He was one of the most widely known physicians of Logan county, having served several terms as county commissioner and as president of the Holden Hospital at the time of his death. He was also an honorary member of the Logan County Medical Society.

Dr. Farley was born in Pike county, Kentucky, in 1866. He located in Logan county shortly after graduating from the medical college of the University of Louisville in 1893. The deceased is survived by his widow, two daughters and one son, Dr. T. F. Farley of Holden. Several sisters and brothers also survive, including Dr. H. H. Farley and Dr. T. J. Farley of Logan and Dr. R. F. Farley of Delbarton.

In tribute to Dr. Farley's long years of service, all city, county and other public offices were closed during the hours of the funeral on the afternoon of September 28. Interment was in the family burying ground at Delbarton in Mingo county.

FROM OTHER JOURNALS

APPENDICITIS

This is no time, Doctor, to keep still, and no subject to keep still about!

We physicians like to think of appendicitis as one disease which we have "whipped." We often wish we were as sure of what to do and when to do it for other diseases as we are for appendicitis.

And yet, here are some startling facts which ought to jar us out of our complacency:

1. One hundred and thirty-five people in Cincinnati die of appendicitis each year. Isn't this number of deaths from a disease which we have "conquered" out of all proportion?

2. This death rate, 30 out of 100,000 is much higher than that in many other cities. In Philadelphia it is only 14 out of 100,000. In Baltimore, 16. Why should our rate be twice as high?

3. A 10-year record at the Cincinnati General Hospital shows an operative mortality of about 1.3 per cent in uncomplicated acute appendicitis. After perforation occurs it runs to over 20 per cent. Aren't these figures extremely significant? They are borne out by studies made in Philadelphia and elsewhere.

You will agree that these facts are not only startling; they are inexcusable. And this situation cannot be put down entirely to blunder on the part of patients.

After all, isn't the responsibility largely that of our profession? Haven't we been remiss in warning and educating and instructing the public about appendicitis?

We need to preach only two facts. But we need to preach them without ceasing:

1. The danger of taking cathartics (especially castor oil or magnesium sulphate) under conditions which the patient may consider "Old fashioned belly ache," "a bilious spell" or "an attack of indigestion.

2. The danger of delaying operation. Efforts to abort an attack of appendicitis by the use of ice bags are far too often weakly substituted for insistence on an immediate operation. Delay can mean only one thing: hourly increased danger of a ruptured appendix.

You would join in warning people to boil their drinking water if typhoid were rampant in Cincinnati. Is is any less your duty to warn them of the less spectacular but still genuinely threatening dangers of appendicitis in this medically progressive city?—*Cincinnati Academy of Medicine.*

BOUQUET RECEIVED

During the long period of business adversity and social unrest, the medical profession, individually and collectively, has taken many a hard knock.

The profession has suffered financially. It has been subjected to scathing attacks by reformers and busy-bodies. At times it has seemed as if the public in general has been unappreciative of the meritorious and faithful services the profession has performed.

Nevertheless, the profession has played the game. It hasn't fallen down on the job or shifted its responsibilities. It has driven hard and straight toward its goal of improving the standards of scientific medicine and seeing that the public gets the benefits of those advances. The traditional and humanitarian principles which have for centuries been the keystone of medical practice have been preserved. The profession cannot be accused of playing the rôle of sob-sister or quitter. All it has demanded is fair play and justice in return for its efforts.

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JAMES R. BLOSS, *Editor-in-Chief* . . . . . Huntington

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THE PROBLEM OF THE CROSS-EYED CHILD*

By LUTHER C. PETER, M. D.
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THIS problem can be viewed from several angles, (1) from that of the child including its growth into adult life, (2) from that of its parents and their responsibilities, and (3) from that of the medical profession, which should include the medical curriculum and education of the family physician and the training of ophthalmologists.

A proper approach for us may be reached by stating briefly what the child has a right to expect and demand in retrospect as he reaches the age of maturity and a more comprehensive review of our obligations as physicians whether family physician or specialist.

In the light of present knowledge, a neglected child in the future will have a just cause for criticism of mismanagement during the years of his neglect when conscientious effort on the part of his medical advisors might have made his future less tragic, and might have spared him irreparable loss. True enough there are individual instances and occasional types of squint in which only cosmetic results can be obtained. They, however, are much in the minority and our message today is in the interest of those who are amenable to treatment and who make up the great majority of cases of concomitant squint.

Briefly the misfortunes to which neglected children can rightfully point are (1) the bitterness, grief, resentment or call it what you choose which fills their lives from the apparently harmless epithet of "cockie", "cock eye", etc., which they hear constantly from their playmates who are unmarred and free from the same defect. It may sound to some but a childish complaint of no significance. To reassure ourselves, however, as to how serious it is to a squinting child, one needs but ask a young man or woman who has been relieved of such a deformity by proper surgical measures, what effect it had upon their childhood. The answer is uniform and leaves no doubt in one's mind that the effect is profound. (2) If these, for the most part, thoughtless epithets are of no concern and do little harm, the squinting child can point to the determining effect upon its development. The average squinting child tends to shun the companionship of playmates, becomes shy, timid and prefers to play alone. An inferiority or inequality complex gradually develops which continues through life with consequences which are difficult to

*Read before the West Virginia State Medical Association at Huntington on May 16, 1934.

measure. (3) To add to the second misfortune, if the deformity is finally corrected by a belated operation, although poor central vision in the squinting eye continues through life and fusion remains undeveloped, the economic loss to the child as it passes into adolescence and adult life is irreparable. It is quite possible for a one-eyed person to fill a useful and happy rôle in the field of human activities, but to be conscious of the many doors of endeavor which stand closed because of inexcusable neglect, is not apt to make such individuals happy.

This, in brief, is a summary of the problem of the neglected cross-eyed child from his point of view.

To turn now to a more hopeful aspect of this problem, the medical profession offers a happy solution which needs only the enthusiastic coöperation of parents, family physicians and specialists. Before a mixed audience of physicians and specialists one cannot speak in the language of specialists nor is it necessary to indulge in anything but the most basic facts and phases to obtain a fairly clear conception of the program which will restore these children to their rightful place in the human family. It is, therefore, unnecessary to offer an apology for reducing my talk to a basis of practicality and simplicity.

In addition to the manifest deformity occasioned by squint; namely, crossing of the eyes, there are two other symptoms which are usually left out of the picture which are quite as essential as the deformity itself. They are (1) loss of central vision in the squinting eye, and (2) inability of the two eyes so to operate that the child can see singly with both eyes fully functionating,—exercise of a fusion faculty. It is the correction of these two latter symptoms which has marked the ending of the old and antiquated method of treating these children, and the entrance of the new plan of procedure which is restoring these little folks to normal visual function.

Etiology of Squint: To obtain a better understanding of our problem, it is necessary to go back a bit to trace the cause and the evolution of squint. Heredity forms the background from which the picture of squint gradually evolves. Hereditary influences are of a dual character. The child inherits its refractive tendencies and its fusion faculty, normal or defective. There was a time when we were taught that high degrees of hyperopia were the inherited characteristics which precipitated the deformity of squint. When, however, we recall that millions of children inherit the same refractive error of farsightedness and do not squint, it becomes necessary to look about for other causes to account for the tendency to cross-eyes in the relatively few who develop squint. Congenital defects or birth injuries to the macula tending to so-called congenital amblyopia seemed to satisfy a few that they found the real cause of squint. Recent studies, however, clearly show that this amblyopia is curable under proper conditions and that the defect, therefore, is not congenital but an acquired phenomenon. What one finds as the other hereditary factor is a weak or absent fusion faculty. When fusion is good, refractive errors, even though high in one eye, are insufficient to cause a break in the binocular use of the eyes. It is when fusion is weak that high hyperopia and especially an unequal refractive error in the eyes allows parallelism to give way to squint. Disturbed fusion is the principal point around which squint revolves. If it is totally absent the child squints at birth or soon thereafter and a true alternating type develops. If fusion is weak, monocular squint may develop, as a rule, in from one to four years after birth.

The layman, however, looks for a more concrete and tangible cause for the precipitation of squint. Convulsions, whooping cough, fright, strong emotions, acute febrile attacks, etc., seem to him to be the real cause. They are precipitating factors, but only in the presence of a weak fusion faculty, and secondarily a high hyperopic error.

When monocular squint is established, vision falls rapidly in the squinting eye from

disuse, the fusion faculty lies dormant, and through the habit of suppression, double vision is totally in abeyance.

Evolution of Squint: As stated above, in the truly alternating type of squint the eyes may deviate from birth or soon thereafter. The monocular type is later in onset and may appear from three months of age to four or five years. Its delayed onset is characteristic and, in some instances, it may suddenly appear after some shock, fright, strong emotion or some acute illness. This leads the layman to the conclusion that squint is due to one of these causes. On the contrary these incidents are but precipitating factors, the last straw, so to speak, which prevents the child from holding the eyes in alignment. What more frequently happens is a momentary period of deviation which recurs and finally remains fixed.

I previously stated as a premise, that a weak fusion faculty forms the background, which renders the evolution of squint possible. This is in the nature of a dogmatic statement, but it is a logical conclusion which has been established only after much thought and experience by those of us who have spent years in the study of the condition. Its proof would be out of place in a discussion of this character and would leave no time to bring before you phases of squint which are most vital. I ask you, therefore, to accept this premise as a matter of fact which has been properly established.

If this fact is accepted, the natural evolution is simple. Most children are highly hyperopic (farsighted) and in most cases of monocular squint the error in the two eyes is unequal. The eye with better vision will predominate and habitually fix. If vision is approximately equal the dominating eye, the right eye in right handed children, the left eye in a left handed child will fix. Unless the fusion faculty is sufficiently strong to hold the maculæ in perfect alignment, momentary diplopia will cause the non-dominant eye to move inward sufficiently to enable the child to ignore the weaker or false image. The same phenomenon in an adult would produce a fixed diplopia which would continue even in wide deviations. The child, however, quickly acquires the habit of *suppression* of the weak image, and it finds deviation of the squinting eye a natural and comfortable position which rapidly becomes a habit. Thus, the habit of suppression is established and becomes one of the two barriers to recovery.

Amblyopia: The third and most important phase of squint is a natural result of suppression. During the early years of childhood macular vision develops rapidly when used. It is equally lowered by suppression. Vision drops in a comparatively short time. By actual experiment, occlusion of the fixing eye, has brought about a transfer of the squint and of amblyopia to the occluded eye in from six to eight weeks. In younger children lowering of vision develops even more rapidly. As vision drops, fixation becomes more difficult. The natural sequence, therefore, is (1) weak fusion, (2) deviation, (3) suppression, (4) amblyopia, and (5) lost fixation. In the correction of squint with this sequence of events or more correctly sequence of symptoms, the order of treatment of the symptoms is practically reversed.

Treatment: With this brief review of the etiologic factors and an equally brief statement of the plan of evolution of the symptoms of squint, the steps necessary for successful treatment are much simplified.

This plan includes, first, correction of the refractive error; second, prevention or correction of emblyopia; third, artificial stimulation of the fusion faculty, and finally the correction of any residual squint by operative measures. You will note that the second and third phases of treatment were totally omitted in the past and that our modern happy results are obtained by inserting these phases of treatment between the first and the last, i. e., between refraction and surgery, the two phases which comprised the total treatment given to these children but a few years ago.

Outstanding, however, in our present plan of treatment is the importance of completing all phases of the cure before the age of seven when this is possible. In short, the time for treatment is in the developmental period of a child's life. This is not a new doctrine, but for some unexplainable reason, the old doctrine of "giving the child a chance to grow out of his squint" was popularly broadcast by those who really knew better. Few children grow out of their squint but rather into it. Those few whose good fortune it is to lose their deformity without proper training, carry with them through life lowered vision in the squinting eye and loss of single binocular vision.

If I were to leave but one thought with you today it is this: "Begin the correction of squint as soon as it becomes established and aim to complete the cure before the child is of school age."

When squint is fixed and constantly present, even though the child may be but an infant, turn the case over to an eye specialist as his charge. If he sees no occasion to keep under observation a child so young, find an eye physician who has the proper conception of squint.

What can be done for a baby in arms who squints? A careful man will go into the history of the child and the family. He will study, so far as possible, the refractive error, and when the child is fifteen to eighteen months old, he will at least attempt to estimate the degree of error. The modern eye specialist is clever in the use of the opthalmoscope and retinoscope. If the child is very farsighted he will prescribe glasses early, even as early as fifteen months in some instances. Many a squint has been brought under medical control by the early prescribing of glasses.

This, as a rule, is the first step in the treatment of squint. It often happens that glasses are impractical until the child is a bit older, but much can be done to preserve the vision in the squinting eye. This is accomplished by occluding the good eye for a number of hours each day. If vision can be kept from deteriorating, half the battle in the cure of squint is over, or to place the case before you in another way, the correction and restoration of lost vision is the most difficult problem which confronts us if the child has reached the age of seven or older. You will understand, therefore, why it is important to start early in the correction of this trouble.

In the presence of an intelligently trained medical audience, it seems hardly necessary to refer to the need for drops properly to prescribe glasses for children. I can, therefore, dismiss this phase of the subject with the simple statement that some form of cycloplegic drops is the sine qua non of refraction of a child.

Glasses properly prescribed mark the beginning of approved treatment. You may ask how many children are cured by glasses alone and why do glasses fail to correct squint in some cases? To answer the first question, glasses start the child on the road to recovery and if worn before vision has deteriorated, they may bring about many cures. As a rule, however, fusion training at least in moderate degree is needed to complete the cure.

Why do glasses fail to cure? First, if vision is low, this in itself will interfere with good results, and progress cannot be made until vision is restored. In the second place, the deviation may be considerable. The images of the two eyes are too widely separated to allow fusion to act. It is obvious, therefore, that central vision must be restored and fusion must be strengthened if operation is to be averted. It is not the purpose of this paper to give a detailed account of the means by which these two measures are to be met. That vision can be restored and fusion can be stimulated to operate normally has been fully demonstrated by all of us who have devoted years of thought and practice to the correction of squint. No further proof is required than the evidence which has been offered in abundance of concrete cases which have been restored to par-

allelism, full binocular vision and stereopsis. What is needed is the broadcasting of these possibilities to the family physician whose coöperation we need, and without which the results will fall far short of the goal which lies but a little way ahead of us.

While the training embodied in orthoptic exercises to correct vision and restore fusion is technical in character you naturally are interested in the underlying basic principles and the length of time required for such training.

Briefly, vision is restored by occluding the good eye for varying periods, and the use of definitely planned exercises and occupations of a kindergarten character. All this is directed by the oculist or his trained technician and carried on by the parents in home exercises. In children under seven, full vision can be restored with proper coöperation in from two to four months.

Fusion training in office and home may require an additional three months. In other words, in six months, full function may be restored in at least fifty per cent of cases. Naturally, the degree of squint, the age of the child and the duration of the deformity are factors which influence the percentage of cures without operation. To explain in detail how fusion training is carried on would be tedious to a mixed audience. It includes careful training in the office with a synoptophore, chieroscope, amblyoscope and stereoscope, all if which is supplemented by stereoscopic exercises at home under the active supervision of the parents. If this part of the program—the home treatment—is not carefully carried on, results cannot be obtained. On the other hand, coöperation on the part of the parents in carrying out a well planned program by the oculist insures success without operation in a large number of cases.

Whether operation will become necessary can be determined in from three to six months of training. If surgery becomes a necessity, the best age for its performance is from three to six years. This to some of you may seem to be radical. May I state, however, that it is basically sound, and confirmed by experience. The time to straighten a tree is when it is young and pliable. The first seven years of a child's life are its formative years. During this period much can be accomplished with greater ease and with better results than in later life. If this reason for early treatment, which is based on sound fundamental principles and is confirmed by abundant experience, when properly explained to the parents, is not sufficient to break down their prejudice and opposition to early treatment and operation, an appeal on the basis of the problem from the standpoint of the child in retrospect, usually wins the fullest coöperation of average intelligent parents.

Cross-eyes can be straightened by surgery if not by proper training. There is no good reason to allow a child or an adult to carry the deformity and all its accompanying handicaps, economically and socially. Modern surgery exposes the individual to few if any risks, but I can go a long step further. With suitable orthoptic training aided in some instances by surgery, the average cross-eyed child can not only be relieved of his manifest deformity but he can be cured in the fullest sense of the term "cured". He can be restored to full visual acuity in his two eyes. He can recover full single binocular vision with depth perception which will open the doors of any vocation for which he is otherwise fitted by natural talents, education and training. What his future will be, depends first upon the training and foresight of the oculist; second, upon the coöperation of the family physician who can guide this little patient into competent hands for treatment; and third, upon the enlightenment of parents as to the possibilities of cure. The responsibility of the parents can best be aroused by the general physician to whom they look for advice and proper counsel.

The great problem is what can be done for those who do not have the means to pay for services. This problem is being solved in

our larger civic centers by the organization of squint clinics. In smaller communities it becomes the problem of individual specialists aided by the men in general practice and public spirited individuals. Any problem which concerns the welfare of the child is of general interest and elicits the sympathy and support of the public. It is probable, therefore, even in smaller centers, sufficient public interest can be aroused in the future to come to the aid of the cross-eyed child, and help to free him from a handicap, which, if not corrected, will have a profoundly determining effect upon him for life.

Public spirited lay individuals are ready, even in these days of depression, to contribute their bit in helping those who are in need of help. The medical profession has never been found wanting when charity is needed.

The problem of the cross-eyed child needs but the touchstone of enthusiasm on the part of all of us who are interested in child welfare, to solve it satisfactorily in the light of present knowledge, belief and experience.

SANE HOSPITALIZATION AND TREATMENT OF THE INSANE*

By J. E. OFFNER, M. D.
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IN advance of the administration of sane hospitalization and treatment of the insane there must be a much better and quickened awakening of public opinion before we can expect to put into effect the necessary treatment, hospitalization, etc. The present day trend is toward the organization of therapeutic institutions, and it goes without saying that they should be headed by individuals qualified for the administration, as well as equipped with a competent staff of physicians, nurses, sufficient supervisors and attendants who are specially trained, before this measure can be met.

There must be those places of special structure to care for mental patients. Prolonged hospitalization in a general hospital is unsatisfactory, due to the fact that the nursing personnel is not properly trained to care for the various types of mental patients. In fact, neither the structure nor personnel is psychiatrically minded.

Mental cases differ in kind, severity and outcome, just as do physical cases, and it should be emphasized that many forms of mental disease are curable when seen early, properly diagnosed and treated. True, there are some relapses or recurrences. However, the chances of recurrence in mental disease are less for the patient who has gained an understanding of his illness through competent psychiatric care, than for those who have not had such care and treatment, but instead have been locked up in prisons along with criminals and vagabonds. At the same time there are those cases entirely hopeless of cure; yet there may be improvement made in the incurable cases with proper discipline and treatment of their somatic and trophic conditions.

In days not long gone by insane hospitals were nothing more than prisons where mental patients were locked up and allowed to perish in filth and misery (a disgrace to themselves, friends, and society), and, as yet, there are about 174 institutions in the United States caring for mental patients. Of this number, 159 are classified as hospitals. The remaining 15 are classified as asylums (although some are called hospitals) and, until recently, three of them were in West Virginia, merely places of detention with no

*Read before the Hospital Association of West Virginia at Morgantown on October 5, 1934.

effort to cure. No one wanted to send their people to these asylums on account of the disgrace. This attitude, however, is now being gradually overcome by modern management of these hospitals, and proper treatment of mental patients.

Insanity is little understood by the average physician in general practice, as he sees but few cases. His knowledge of psychiatry is usually limited, as well as his experience in the treatment of these cases. He is interested more in the functional disorders, in trying to readjust the bodily processes so that they may work in harmony — something that he can see, or feel, as in fractures, tumors and cystic calculi that can be seen by the x-ray, the signs and symptoms of remittent, or eruptive fevers; but the perverted functions of the brain, however, are things that cannot be seen or felt. The psychiatrist's business is to study and trace out the different psychoses and treat those that are purely psychotic. Others, traceable to surgical or functional disease, can be referred to the surgeon or internist for treatment of the disorder causing the psychosis.

Dr. Burr defines insanity as "A prolonged departure from the individual's normal standard of thinking, feeling and acting." The patient's insanity is revealed when he cannot adjust himself to his environment, and only by his conduct can we infer that insanity exists. It has been said, "A chain is no stronger than its weakest link; subject it to sufficient strain and it will break." The same is true of man; subject him to sufficient stress and he may become insane. This may be due to any of the various causes of insanity that happens to be his, or her, weakest link; such as heredity, abuse of alcohol or drugs, syphilis; acute or chronic infections, such as influenza, pellagra, endocrine disorders, encephalitis, and somatic diseases; incidental causes acting only in the presence of an essential cause, such as pregnancy, failures in school or business, domestic troubles, etc.

Insanity is divided into some twenty-four different classifications according to the latest set up of the American Psychiatric Association.

1. Psychoses with syphilitic meningo-encephalitis (general paresis);
2. Psychoses with other forms of syphilis of the central nervous system;
3. Psychoses with epidemic encephalitis;
4. Psychoses with other infectious diseases;
5. Alcoholic psychoses;
6. Psychoses due to drugs or other exogenous poisons;
7. Traumatic psychoses;
8. Psychoses with cerebral arteriosclerosis;
9. Psychoses with other disturbance of circulation;
10. Psychoses with convulsive disorders (epilepsy);
11. Senile psychoses;
12. Involutional psychoses;
13. Psychoses due to other metabolic diseases, etc.;
14. Psychoses due to new growths;
15. Psychoses associated with organic changes of the nervous system;
16. Psychoneuroses;
17. Manic depressive psychoses;
18. Dementia praecox (schizophrenia);
19. Paranoia and paranoid conditions;
20. Psychoses with psychopathic personality;
21. Psychoses with mental deficiency;
22. Undiagnosed psychoses;
23. Without psychoses;
24. Primary behavior disorders.

Insanity in the United States is increasing about four times as rapidly as the total population increases. Within the past two decades, mental diseases reported by hospitals and asylums show a numerical growth of 66 per cent, as compared with an upward trend in population of 16 per cent, and public and private institutions are crowded to their limits, with their facilities inadequate to meet the overwhelming demand placed upon them. This increase may be partly due to the economic depression. Although our in-

stitution is crowded in the rapid increase of the number of insane, we are not quite as congested as the hospital at Mayview, a Pennsylvania institution which has facilities for 2500 and a population of 5000. Weston State Hospital has a capacity of 1250 and a population of 1640 which, in comparison, is not quite as overcrowded as Mayview. Why should there be such an increase in the incidence of insanity? Is it inevitable? As some noted surgeon suggested, "Can it be the price we pay for civilization"? Must we watch this army of mentally diseased advance from year to year? However, there has been much progress made in the humane treatment of the insane so effectively advocated by Dorothea Dix about 1841 which made her known throughout the world as a practical philanthropist, and finally succeeded in establishing the first real mental hospital at Trenton, New Jersey, of which the late Dr. Henry A. Cotton was medical director for 25 years. First, in order to check this advance in the number of cases of insanity, is to—

Remove All Sources of Infection: It has been observed by Dr. Cotton and other eminent psychiatrists that a large percentage of supposedly incurable mental disorders have been cured by the removal of septic tonsils, extraction of infected teeth, and elimination of diseased colons and other sources of chronic infection.

A case of epilepsy of ovarian origin was reported in the medical record of May, 1934. The patient, 23 years old, became afflicted with epilepsy at the age of 13, one year after menstruation had been established, and for 10 years suffered from convulsions, hysteria, insomnia and other nervous manifestations. Different methods of treatment were resorted to, including gland treatment. Finally, after years of suffering, an examination revealed an ovarian cyst. Operation was performed removing a cystic right ovary the size of a lemon, several small follicle cysts and the appendix. The patient six months after operation was still doing well.

I recall one case who brooded over a so-called stomach trouble until he became definitely psychotic, and was entirely relieved by removal of a chronic infected appendix. We merely mention these cases to show that comparatively minor defects may cause or aggravate a psychoses which, if not corrected, may later result in the patient becoming insane.

New methods of treatment are replacing the instruments of torture as a curative agent for insane patients instead of the iron crib, neck bands, and many other torturous devices. With the coming knowledge of psychotherapy many institutions, to their credit, have abolished all restraint. We have in our institution only a very few criminal insane that are occasionally restrained, and this is done only for the protection of others in our crowded condition and limited help to care for them; but kind humane treatment will accomplish much more than restraint and abuse.

Proper Dietetics and Hygiene: Any type of personality, whether psychotic or non-psychotic, if poorly fed, becomes mentally disturbed and restless to a certain degree because of his hunger. Even the dumb brute jumps the fence to procure more abundant and greener pasture. The majority of mental cases entering state hospitals are emaciated and poorly nourished. Thus, good food properly prepared may be considered one of the first steps in promoting good feeling and welfare which, in turn, satisfies, and his mind becomes restful. Improper feeding in state mental hospitals is not always the fault of the executive or his staff. It is sometimes due to the legislators in failing to provide sufficient appropriation, because they lose sight of the fact that patients properly fed and clothed have a certain feeling of satisfaction and, in the slang of the street, "stumble over a dollar to save a dime."

There are the paranoid patients who refuse food because they have delusions about it being poisoned. The catatonic types are negativistic. Depressed patients wish to die.

Manics are too agitated, or too busy, to eat. These classes of patients, after a few artificial feedings, invariably much prefer eating to feedings. With feeding their resistance is built up rapidly, and along with this comes improvement in mental and systemic conditions. The patient frequently recovers and returns home.

Many of the psychoses should be termed deficiency diseases. For illustration, many of our manic types are poorly nourished and, by building up their resistance along with proper supervision, the patient recovers and returns home.

Many cases sent to mental hospitals after having been confined in jails, restrained at home, etc., have been loaded with bromides, hypnotics, and narcotics in order to keep them quiet. This must all be eliminated and they must be allowed to adjust themselves to their surroundings before we see their real selves.

Referring to the time of Hippocrates who practiced medicine 440 years B. C., it will be interesting to note that some of the suggestions he made to his patients are of value even to the present day. For instance, a patient called upon him and, being unable to elicit any symptoms whatsoever that would confirm a pathological condition of either mind or body, in his wise way he said to him, "Go into thy field and labor and thy mind and body shall be healed." Undoubtedly, he was dealing with a condition which would now be termed psychoneurosis, and in our time the treatment would be classified as occupational therapy. This same treatment, or suggestion, is still followed in many of our mental hospitals today. On down through the ages we find such men as Galen, and others equally noted, following the example of their famous predecessors who made many suggestions that are followed even to this day.

(1) The most efficacious form of treatment of young and middle-aged patients of the manic group is hydrotherapy. After these patients have cleared mentally, then occupational therapy. Both of these treatments are inconsistent in the hands of untrained and unskilled attendants. It is also a misfortune to place patients under the supervision of a physician who is not experienced in this character of treatment. Psychoses of this type in the aged should never be referred for hydrotherapy, as it is dangerous due to their age and circulatory changes.

(2) Another type, known formerly as psychoses of the adolescent but more recently as dementia praecox, will clear mentally in a remarkably short time by the use of hydro and occupational therapy, and at least become better hospital patients, and many of them are relieved to the extent that they may return home. While they do not become useful citizens, yet, under proper supervision, they adjust themselves fairly well to their environment and often never have to be returned to the hospital.

(3) Psychoses with syphilitic meningoencephalitis, which is the most recent classification for general paresis, is, of course, an involvement of the central nervous system due to lues, for which many forms of treatment have been instituted in the past; and in days before we were able to secure specimens of blood and spinal fluid, it was diagnosed purely upon the neurological findings, and no doubt many errors were made in its incipiency, due to the fact that general paresis, alcoholic psychosis and lead intoxication are neurologically almost identically the same. Thanks to science for the discovery of the arsenicals, along with malaria treatment and diathermy, we have been able to make some progress in the treatment of leutic involvement of the central nervous system; though some of our best authorities claim that neoarsphenamine has little or no effect in the treatment of this condition on the central nerve system, and should only be administered in cases of systemic lues; and that tryparsamide is the proper arsenical to be used in lues of central nerve involvement. The malaria treatment has gained wide rec-

ognition and has some very beneficial results, as has diathermy. These cases require the greatest attention and should be under the supervision of physicians and nurses who have had efficient training in this class of work. Doctors Kasa k and Eshelman, (the latter, a member of our staff), are responsible for an efficient and thorough outline to be followed in the administrative care and supervision of patients in this form of treatment.

(4) The psychoses of the old, classified as senile psychoses, are patients who for the most part require only custodial care as any treatment is of little value, due to their age.

(5) Psychoses associated with epilepsy are most difficult to treat and the most dangerous type with which we have to deal. The drug that has been of the most value in this condition in our experience is phenobarbitol or some of the barbiturates. This probably does prevent the frequency of the attack to some extent. While the cause of epilepsy is yet in duobt, Jacksonian epilepsy is thought by some to be due to an irritation of the cortex of the brain, and is also relieved to some extent by the administration of this drug given under the direction of a competent physician. Traumatic epilepsy, as we all know, is due to trauma and may be relieved by the proper surgical treatment. P r e v e n t i v e treatment that which is most urgent, is sterilization of mental defectives and incurable insane where two or more generations have been afflicted with similar psychoses. West Virginia, however, has a law which has as yet not been tested.

Our present Governor Kump's sympathy was aroused on one of his early visits to the state institutions, and he is giving us every coöperation possible for the betterment of these conditions. He, together with Dr. Albert Hoge of Bluefield and other members of the West Virginia State Medical Association, have worked out a very admirable plan, (although not yet in effect), in caring for poor unfortunate insane patients, and many other states are adopting similar plans. West Virginia's plan is to centralize a receiving center for all mental patients committed by the mental hygiene boards from the various counties, and have this center equipped with the best medical, surgical, dental and psychiatric resident staff available with a well equipped surgical unit, laboratories (both clinical and x-ray), well qualified surgical supervisors, anesthetist and technicians, as well as a consulting staff of the best available men the state affords in their special lines. These consultants are subject to call when necessary in order to help these unfortunates, who are our people, with the hope of restoring them to citizenship and society. The aim is to receive all mental cases, give them a complete medical, surgical, dental and psychiatric examination and remove all sources of infection.

It was the purpose of this plan to take these patients in groups from the various wards to the medical center of our hospital for careful study and observation. After this they would be passed on to the other institutions in the state for further study, observation, and custodial care in an effort to give these poor unfortunate people the best possible advantage that modern medical, surgical, and psychiatric experience has to offer.

In conclusion, I wish to state that much more could be said relative to this treatment of the most common type of present day psychoses.

GLASSES

The eye physician will insist on the use of glasses only for those patients who most certainly need them, Dr. Hyman Cohen explains in the November *Hygeia* in the chapter of "The Eye Book" which deals with eyeglasses.

Glasses should primarily improve the sight; that is, they should increase the acuity of vision of those who are near-sighted, astigmatic or exceedingly far-sighted and of most persons past the age of 45.

It is, however, an equally important but frequently neglected point that glasses should make seeing more comfortable and eliminate irritation and strain of the eyes.

A REVIEW OF THE ETIOLOGY AND PATHOLOGY OF VARIOUS CARDIAC CONDITIONS*

By Clement C. Fenton, M. S., M. D.
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It is a very difficult problem to discuss the etiology and pathology of the various cardiac conditions within one hour. With this being the case only the most important diseases will be discussed.

The customary procedure is to describe the lesions affecting the endocardium, myocardium and pericardium, separately, but this distinction will be waived in the case of rheumatic disease which involves all portions of the heart, and to some extent, the aorta as well. The joints and other organs also show lesions.

The etiology of rheumatic fever is still in doubt. MacCallum[6] says: "Although for years investigators have attempted to show that it is caused by one sort of bacterium or other—generally some type of streptococcus —there is no convincing evidence that any of the different bacteria occasionally found in the blood or respiratory passages, have any importance as to its cause. Indeed, in the most typical cases, we and others have found no bacteria at all after most careful search by culture methods and inoculation of animals." He also ventures to state: "It seems probable that rheumatism is caused by one of those elusive filterable infective agents which we cannot see or cultivate and to which none of our laboratory animals is susceptible." Karsner[7], from a review of the literature, has found that there is no positive evidence of a specific micro-organism as the cause of rheumatic fever. In 1900 Poynton and Paine isolated in several cases a small diplococcus which they named the diplococcus rheumaticus. Clawson[5], through injection of non-hemolytic streptococci obtained from human cases, produced lesions in experimental animals resembling those occurring in man. Up to the present time it can be stated that the causative agent of rheumatic fever has not been found.

Rheumatic fever most frequently attacks the valves of the heart. The mitral valve is mainly affected, the aortic valve is less often attacked and the valves on the right side of the heart least often involved. Macroscopically, vegetations are seen at the point of closure of the leaflets. They are verrucous or warty in character and form multiple small rounded nodules which range from pin-point to pin-head in size or slightly larger. Their consistence is quite firm. The remainder of the leaflet shows inflammatory changes. Microscopically, infiltrations of leucocytes and lymphocytes with proliferation of fibroblasts are observed. Recurrent inflammation may take place causing further proliferative changes with thickening and distortion of the leaflets.

In many cases in the heart wall the lesion known as the Aschoff body is noted. These bodies may be seen grossly as minute grayish white nodules but often they are only detected by microscopical examination. The nodules are round or oval in shape and situated usually in the fibrous tissue about the blood vessels. The cells present are of the large and small mononuclear types. Also large multinuclear cells, known as Aschoff cells, are observed.

The condition is commonly accompanied by acute or subacute pericarditis. The exudate is serofibrinous in character. The fluid is not abundant but the fibrinous exudate upon the surface of the organ gives it a shaggy appearance. Occasionally, when

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healing takes place, adhesions may form between the visceral and parietal layers causing a more or less extensive adherent pericardium. Calcification is also likely to accompany the condition.

The endocardium may be involved in conditions besides rheumatism. The forms of endocarditis encountered may be acute, subacute, chronic and recurrent. When the valves alone are the seat of the disease, the inflammation is called a valvulitis. If the lining of the chambers is attacked, it is designated as a mural endocarditis. While if the chordae tendineae are attacked, the condition is called a chordal endocarditis.

The bacterial forms of endocarditis are divided into acute and subacute types according to the clinical duration of the disease. The former runs a course of less than six weeks, the latter form six weeks to two years or slightly longer.

The acute bacterial form of the disease which is also known as acute ulcerative or malignant endocarditis is not as common as the subacute bacterial type.

Two forms of acute bacterial endocarditis are encountered. A primary form, with lesions not present elsewhere at autopsy, is infrequent. The secondary type, following pneumonia, infectious diseases and septic conditions such as puerperal sepsis, is much more frequent. The organisms obtained by culture methods are streptococcus hemolyticus, pneumococcus, staphylococcus aureus, bacillus typhosus and bacillus coli.

Upon gross examination, there is marked ulceration and destruction of the valves with large vegetations. Microscopical examination shows deposits of fibrin and platelets, masses of bacteria, edema and extensive necrosis as well as infiltrations of polymorphonuclear leucocytes.

The mitral and aortic valves are most frequently attacked, and the tricuspid quite commonly. The pulmonic valve most often escapes.

Subacute endocarditis follows the rheumatic form in frequency. Libman designated it as subacute bacterial endocarditis and Schottmüller as endocarditis lenta. According to the former, the streptococcus viridans is the most common microorganism encountered. Streptococci of the nonhemolytic type are present in 95 per cent of the cases.

Besides the streptococcus viridans, numerous other organisms such as the pneumococcus, brucella abortus, bacillus influenzae, gonococcus, staphylococcus albus, staphylococcus aureus, meningococcus, bacillus coli, bacillus diphtheriae and even actinomyces have been recovered from the lesions. Mixed infections also occur. The portal of entry of the microorganisms may be foci such as the teeth, tonsils, intestinal tract, etc.

The lesions affecting the heart are mainly confined to the valves. The mitral valve is most frequently involved, the aortic valve next in frequency, the tricuspid valve still less frequently and the pulmonic valve least of all. Boyd[1] states that the valves have seldom been normal previous to the attack. They have often been the seat of rheumatic disease, or there may be an anomalous condition such as a bicuspid aortic valve. The vegetations occur along the line of contact of the leaflets. They are large and friable, yellowish red in color and readily break off. Fragments of the vegetations readily break off and are carried as emboli by the blood stream to various parts of the body. Microscopical examination shows the presence of thrombus formation with hyaline and other degenerative changes. Masses of cocci are usually seen together with infiltration of mononuclear cells. Proliferation of connective tissue is also observed and calcification may be noted in the deeper structures.

In the course of both acute and subacute endocarditis changes may be observed elsewhere in the body. Infarcts may occur in such organs as the brain, spleen, kidneys and at other sites. Petechial hemorrhages may be seen in the skin. Mycotic aneurysms sometimes occur along the course of arteries and diffuse glomerulonephritis may be observed. Degenerative changes, such as

cloudy swelling, may be found in the viscera. A secondary anemia is likely to accompany the condition.

Perhaps the term sclerosis of valves is more satisfactory than chronic endocarditis. When the valves are distorted, thickened and hardened, or even calcified, it is very difficult to determine the cause which influenced the changes many years before. The etiological factor may have been rheumatic fever or an old bacterial endocarditis.

Minute vegetations are sometimes seen on the valves of the heart in persons dying of chronic conditions such as nephritis and diabetes mellitus. The condition is called a terminal endocarditis. The vegetations are more likely to be of toxic than bacterial origin.

When the heart does not reach its normal size at adult age the condition is known as hypoplasia. Hearts observed at autopsy weighing less than 200 grams are called hypoplastic hearts.

When the adult heart is much reduced in weight following prolonged wasting diseases, or in undernutrition and old age, the term atrophy is used. Often the epicardial fat appears gelatinous in character and the change is called serous atrophy of fat. In advanced age the color may change to a deep brown and the condition is designated as brown atrophy. The increased pigmentation which is observed microscopically about the nuclei of the muscle fibrils is composed of a pigment derived from ingested food and also of a pigment normally present in the muscle which increases with advancing years.

Cardiac hypertrophy is due to functional demand for increased power. According to the degree of hypertrophy, the weight of the heart is correspondingly increased. The muscle fibres become larger but there is no numerical increase. Among the causes of hypertrophy are adherent pericardium, aortic stenosis and regurgitation, mitral insufficiency, chronic glomerulonephritis and increased resistance in the peripheral vessels, especially associated with hypertension.

Grossly the heart muscle is firmer in consistence than usual and of a slightly deeper reddish color. The chambers are usually but not always enlarged, and the dimensions of the papillary muscles are increased. Microscopically, there is an enlargement of the muscle fibres and their nuclei with an increase in connective tissue.

Dilatation of the heart is frequently associated with hypertrophy. It generally comes on with increasing failure of the heart. With the increasing distention of the cavities, relative insufficiency of the atrioventricular valves may occur. Occasionally, the heart may become acutely dilated as the result of very great sudden stress. With rest the chambers return to normal size, but for some time afterward there is functional impairment. In toxic conditions affecting the myocardium, especially in the course of diphtheria, acute dilatation may occur which may be fatal. The heart in dilatation is increased in size and more spherical in shape than normally. The walls are flabby and may show signs of previous degenerative changes.

The lesion called acute myocarditis is sometimes known as acute nonsuppurative myocarditis, acute parenchymatous myocarditis, or toxic myocarditis. It may accompany inflammations of the pericardium or endocardium, as well as infectious diseases such as diphtheria, scarlet fever and measles. It may also occur with pyemia and septicemia. Toxic substances are the greatest factors in its causation. Upon macroscopic examination, the organ is soft in consistence and pale in color. The cavities are usually filled with blood. Under the microscope various changes may be observed such as cloudy swelling and other forms of degeneration. Aschoff's bodies may be seen in the rheumatic form. Sometimes cellular infiltrations are found in the interstitial tissues.

The most frequent cause of pericarditis, namely rheumatic fever, has been discussed. It is said that nearly one-fifth of all cases of

rheumatic fever and subacute bacterial endocarditis are complicated by pericarditis. Streptococci are the most frequent causative organisms. The pneumococcus is next in frequency. The condition may be secondary to endocarditis, or may complicate scarlet fever, influenza, osteomyelitis and typhoid fever, or may develop in the course of pyemia and many other conditions. It may develop by extension from neighboring areas of inflammation, especially of the mediastinum. Occasionally, a terminal form is seen in carcinoma, chronic renal disease and other prolonged affections.

The exudate upon the pericardium may be of a fibrinous, serofibrinous, purulent, fibrinopurulent or hemorrhagic nature. The membrane at first loses its sheen. A layer of fibrin forms on the surface which gradually becomes thicker and more shaggy in character. The heart covered with long strands of fibrin is known as a "cor villosum." When the exudate is purulent, it has a thick creamy appearance. If it is considerable in amount it is called a pyopericardium. Histologically, there is noted congestion of the blood vessels and meshes of fibrin with leucocytes and other inflammatory cells contained within its strands. In the purulent form, little fibrin is observed but leucocytic infiltration is extensive.

Upon healing adhesions may form between the visceral and parietal layers producing a condition known as chronic adhesive pericarditis. Occasionally, calcification may occur with the formation of stony plaques.

Tuberculosis of the endocardium is exceedingly rare. Tuberculous myocarditis is, likewise, a rare condition. Tuberculous pericarditis, also rare, is most often observed. It may be acute or chronic in its course and is practically always secondary to tuberculosis of the lungs, pleurae, lymph nodes or bone. Tubercles may be seen upon gross or histological examination with the usual characteristics of the disease.

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OVERWEIGHT CHILD

Since fatness is not a sign of health and is liable to develop into exactly the opposite and because an overweight child has a serious psychologic problem to face in that teasing and unattractiveness affect his self confidence, David's mother set out to keep him from becoming fatter. The story of how she did this is told by Ellen Grindell in "If Your Child Is Overweight" in the November *Hygeia.*

Equally as important as the diet list, which was prescribed by a physician who was also a child psychologist, was the plan by which is was carried out. David had his meals alone; his dinner was served at an earlier hour than that of the rest of the family. This served several purposes as it removed the temptation of seeing food which he could not have; it satisfied his appetite when he came in from play, and it did away with the eating of extra food between meals. His meals were served attractively on a blue plate so that all second portions were eliminated, and he soon came to realize that the food placed before him was all he could have. His mother always stayed with him so that he would not be lonely, but she did not eat with him.

The second part of the plan consisted of charting David's weight day by day. He and his mother made the chart, and he was weighed every night. For each day that he lost weight, his mother not only wrote in the figures but pasted a gold star on the chart. An inexpensive toy from the 5 and 10 cent store marked every two pounds lost, but the reward was not exaggerated.

COLLAPSE THERAPY IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

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SINCE the discovery of the tubercle bacillus by Koch in 1882 there have been perennial waves of enthusiasm over some new development that at the time bade fair to prove itself to be the long looked for specific for tuberculosis. The most exciting of these discoveries was the preparation of, and the claims for, tuberculin — claims which were soon blown sky high by the unfortunate accidents which followed its injudicious and too enthusiastic use. More recent examples have been the use of sanocrysin, of the salt-free diet, and what may perhaps in the end prove to be more important than any of these—the bacillus Calmette-Guerin vaccination. In the end, however, none of thes developments has come up to expectation, and always there has been a falling back upon the one reliable and fundamentally sound principle of treatment—the only one that gives uniformly satisfactory results—the treatment which is and must logically be the most satisfactory method of procedure until the discovery of some specific serotherapy or chemotherapy for tuberculosis; namely, the effecting of as complete mechanical rest for the diseased lung as it is possible or advisable to secure.

I think it is worth while for a moment to review briefly the statistical position of tuberculosis. It is unfortunate, but unaccountably and sadly true, that tuberculosis with its alarming morbidity and mortality rates is regarded by so large a part of the medical profession with an attitude of resignation, as an unfortunate medical problem which is always with us and which we perhaps must expect to be always with us, while a localized epidemic of amebiasis or poliomyelitis kicks up such alarm and frenzied preventive measures. By that I do not mean that the majority of the medical profession is indifferent to the menace and importance of tuberculosis in the community. It may be that its insidious aspect cloaks its deadliness to the observer, as compared with the dramatic suddenness and clearly defined clinical course with which the other conditions make themselves manifest in the community. But tuberculosis is not one whit the less deadly for its deliberate course. Up to the year 1912 it caused a greater number of deaths yearly than any other disease. While it is now in seventh place, according to 1931 statistics, being preceded in importance by six greater killers in order, heart disease, cancer, pneumonia, nephritis, cerebral hemorrhage and accidents, we must not lose sight of the fact that it is still the greatest single cause of death for the particular productive age period between 15 and 45, and that it is the greatest killer of all contagious and infectious diseases. In the average city of 100,000 between 60 and 70 deaths from tuberculosis will occur yearly, and approximately 500 will have active disease, recognized or unrecognized.

Alarming as these figures are, let us glance at what has been accomplished since 1904. In that year the death rate in the United States registration area was 201 per 100,000 and the number of institutional beds available for treatment was 6962. In 1928 the death rate was 79 and the number of beds available 69,457, a 61 per cent drop in the death rate with the provision of ten times the number of beds available 24 years before. These figures speak for themselves—the con-

*Read before a joint meeting of Monongalia-Preston County Medical Societies, July 6, 1934, at Hopemont, W. Va.

tinuous drop in the death rate parallels exactly the provision of more and more beds, providing better rest of the lung to more patients. In June, 1931, there were 82,782 beds available in 638 institutions, 3,743 of these being in private and 14,449 in semi-private institutions. Coincidently the death rate has dropped still further, standing at an estimated 65 per 100,000 in 1932. It is interesting to note that the Michigan death rate for 1931 was 55 and for 1932 was 48.3 and at that time Michigan stood thirteenth in the statistical column although it is a highly industrial state, and the death rate tends to be higher than normal because of the large Wayne county negro population, which contributes 32 per cent of the deaths from tuberculosis. The negro death rate was 312 in 1932 as compared with 50.3 for whites. In 1933 the Michigan record is still better, the death rate decreasing to 43.6. This figure represents a decrease of 52.6 per cent from the 1915-1916 rate of 92. It is also significant to note that for the ten years previous to 1929 there had been little change in the death rate from tuberculosis in Detroit. For 1928 the rate was 95.1 per cent; in 1929 it was 93.9 per cent and in 1932 it was 70.3 per cent, a drop of 26 per cent in five years. This coincides with the period at which the end results of the intensive collapse therapy program would be coming to light.

Another very important point is brought up statistically. In a study of ex-sanatorium patients of two state sanatoriums, New Jersey and North Carolina, conducted by the N. T. A., covering 7000 patients discharged 15 years previous to the period of study, it was found that 62 per cent of the minimal cases were living, and 82 per cent of these were working. Thirty per cent of the moderately advanced were alive, 78 per cent of these working; 50 per cent of the moderately advanced cases had died by the seventh year. Of the far advanced cases (and the point here is that more than 50 per cent of patients admitted to sanatoriums are far advanced) only eight per cent survive, 39 per cent were dead in the first year, 75 percent by the fifth year. Nothing can indicate more plainly that the patient's chance of living is directly proportionate to the stage of involvement of his disease at the time of discovery and beginning of treatment. Furthermore the length of survival after discharge bears a more or less direct ratio to the length of sanatorium treatment, this point being emphatically proven in the case of the far advanced patients. Therefore can anything be more clear than that it behooves the general practitioner and the specialist to diagnose all cases of tuberculosis in the minimal stages of involvement and get them under treatment at once? The nearer the ideal of diagnosis and close coöperation with institutions is brought to realization, the sooner will tuberculosis cease to be so important a menace to the health of the nation, as this will largely eliminate the most important factor in the prevalence of the disease, contact with open cases, with cavities and positive sputum. And here it is vitally important, if good preventive work is to be done, to remember that the use of the x-ray increases the ratio of correct diagnosis by 250 per cent. The stethoscope can pick up only 40 per cent of the minimal cases, while the x-ray is almost 100 per cent infallible.

With all this evidence, then, so overwhelmingly proving the value of rest to the lung as secured in sanatoriums, it has been only logical to pursue the ideal of securing the maximum amount of rest possible by instituting various surgical procedures to splint, relax and collapse the diseased areas. In this way the policy of treating tuberculosis in a passive way by bed rest is giving way rapidly to the policy of active attack with surgical collapse. This policy in no way belittles the value of bed rest. In fact, bed rest is an absolutely necessary adjunct which collapse therapy *per se* can never supplant. The only requisite or indication for the application of collapse therapy is that the procedures chosen should not constitute more of a risk to the patient than his disease would

constitute if not properly treated. I have used this qualifying phrase "if not properly treated" because the majority of patients receiving bed rest alone are certainly not being properly treated. Some of the statistical end results of large groups of sanatorium patients discharged after bed rest alone are so illuminatingly poor in comparison with the results that are being secured by adding collapse therapy that it is of considerable interest to examine these figures.

The treatment of tuberculosis is largely a matter of the closing and healing of cavities in the lung. The menace of the open cavity is strikingly illustrated by Barnes' figures from Wallum Lake in 1928, covering 651 cases admitted previous to 1918 with cavity diagnosed by physical signs, and 803 patients admitted since 1918 with x-ray evidence of cavity—a total of 1454 admissions between 1905 and 1927 with cavities and positive sputum. Of these 1454 patients, 1244 or 85 per cent were dead in 1928 and the average duration of life was slightly over twelve (12) months. Of the dead, 80 per cent died within one year of admission, 90 per cent within five years and 95 per cent in 15 years. Of those with cavities larger than seven cm., 88 per cent died within a year. Of those with small cavities, one to two cm., 82 per cent died within three years. Of 17 cases with more than three cavities—not one lived a year. Of his patients admitted without cavities, 33.1 per cent are dead.

While collapse therapy has to some extent been in use, chiefly in the form of artificial pneumothorax, for several decades, it is only within very recent years that an intensive campaign of collapse therapy for all patients to whom it can be made generally applicable has been in effect in certain sections of the country. It is very unfortunate that among the general profession and to a large extent also among those who direct the medical policies of institutions, there is such indecision and difference of opinion as to the value of such a program. What tuberculosis needs in all sections of the country is more than the tentative dab at collapse therapy in very carefully selected cases. That is all that many institutions care to venture upon, less of the timid and really radical policy of watching patients at bed rest to observe how many will get worse before collapse therapy is finally prescribed; and more of a bold but really conservative policy in offering patients from the first the mechanical aid that will help them, in conjunction with bed rest, to close their cavities and heal their disease.

Comparative statistics of the end results of treatment of a general collapse therapy program with the end results of treatment of a bed rest program are not easy to find. In 1933 I published a paper indicating the applicability of various collapse measures in 420 consecutive admissions to the Michigan State Sanatorium; 77.14 per cent of these patients had one or more measures of collapse prescribed. At present the end result of this program is in process of compilation, but is not available. The program has been in effect only since 1930. It is interesting to note, however, that whereas the annual report covering the adult types of pulmonary tuberculosis discharged in the year ending June 30, 1931, shows 20.24 per cent arrested and apparently arrested, and 17.26 per cent dead; the report for the year ending 1933 shows 41.15 per cent arrested and apparently arrested, and 9.3 per cent dead. Similarly, at the Maybury Sanatorium, Northville, Michigan (850 bed capacity) where a similar collapse therapy program is in effect, the annual reports show that the percentage of apparently arrested cases increased from 8.1 per cent in 1927 to 35.4 per cent in 1932, while the mortality decreased over the same period from 25.8 per cent to 6.5 per cent.

While statistics are not available as yet for the collective features of a collapse program, the specialized features are well covered in the literature. An interesting tabulation is that of Head, Schlack and Marx[4] of Oak Forest, Illinois, in 1932—covering 75 patients who were given a phrenic operation following admission, compared with 75

patients of as nearly similar a group as possible to select from another institution, who received no collapse therapy and acted as controls. The period of observation was from three months to three years. At the time of tabulation 28 or 37.33 per cent of the phrenic group was arrested as against eight or 10.67 per cent of the control group. Of the operated group seven or 9.33 per cent were dead, and of the control group 33 or 44 per cent. The total number in the groups arrested to improved compared 82.6 per cent, and the number unimproved to dead, ran 17.4 per cent compared with 64.4 per cent of the control group. Of the phrenic group 56.1 per cent became sputum negative as against 21 per cent of the control group. Of those with cavities, 30 per cent were arrested with surgery as against five per cent of the controls. Of those without cavities the figures were 47 per cent as compared with 16 per cent. Another point noted was that in the operated group not only was there a much smaller percentage of spreads in the contralateral lung, but also a much higher percentage of active lesions in the other lung cleared than in the control group. O'Brien in 1930 reported on 500 phrenic operations in which 52.2 per cent of the patients with positive sputum before operation became negative following it. More recent statistics of O'Brien[6] covering thorocoplasty, indicate a mortality rate of 2.6 per cent for 151 thorocoplasties. Of 88 patients who had thorocoplastic operations between April of 1933 and April of 1934, 81 per cent at the time of reporting had negative sputum and 91 per cent had their cavities closed. Since then the statistics on these same patients show still better end results.

Alexander[7] in 1933 reported on the results of 654 phrenic operations. Of 302 patients who had phrenic neurectomy alone, 272 were traced, of whom 69 per cent were arrested to improved and 31 per cent unimproved or dead. The cavities were closed in 38 per cent of 215 cases following. Of 65 patients without cavity who had a phrenic operation after unsuccessful pneumothorax, 92 per cent were arrested or improved. Of the entire group of 654 patients, distinct benefit toward arrest of the disease was secured in 64 per cent, 30 per cent showing failure and the result being unknown in six per cent.

At the Maybury Sanatorium in 1930 another comparative study was made of 200 cases with cavities three cm. in diameter or larger; 100 cases received bed rest alone; 75 received phrenicectomy alone, and 25 a phrenic operation as an adjunct to pneumothorax. In the bed rest group, cavities closed in 14 per cent; in the phrenic group in 49 per cent. They decreased in size in 25 per cent of the bed rest group, and in 35 per cent in the phrenic group; cavities increased in size in 61 per cent, however, of the bed rest group as compared with only seven per cent in the operated group, and finally and still more striking, the closed cavities reopened in the bed rest group in 42 per cent, but in not a single case of the phrenic group during the same period of observation.

The committee on treatment of the National Tuberculosis Association presented a report at the 1933 meeting in Toronto of the extent to which their questionnaires indicated collapse therapy to be used in the various sections of the country. Michigan led with 77.7 per cent from the institutions reporting, Rhode Island being next with 73.7 per cent. Then there was a drop to 47.7 per cent in Connecticut with a low of 10.8 per cent in New Hampshire, a total of 112 institutions reporting. Three institutions reported no collapse therapy of any kind; this in spite of the fact that artificial pneumothorax is as well established for tuberculosis as is antitoxin for diphtheria. Ninety-four of the 112 institutions reporting, make use of thoracoplasty, which is the ultimate in chest surgery for pulmonary tuberculosis.

These statistics indicate that the collapse therapy of pulmonary tuberculosis is gradually coming into its own all over the coun-

try. In sections where it is most widely used, results are being shown that justify its continued use as an adjunct to bed rest, or shall we more properly say that except in the most obviously hopeless cases, in which its use is withheld, collapse measures should be the primary object of treatment, with succeeding bed rest a necessary and very valuable adjunct. In possibly one other group of cases there may at times be doubt as to whether operative measures are necessary, the small group of minimal cases showing rapid clearing and fibrosis. Even here the permanent protective value of phrenic paralysis against future reactivation of the diseased area should be remembered. In general it is wiser to provide phrenic surgery immediately in the minimal case, as in most instances previous serial plates are not available indicating the character or mode of behavior of the lesion. Each case is a rule to itself; that is a well known axiom in tuberculosis. It is never safe to say that because a certain minimal case has been seen to progress very satisfactorily to healing that the majority of similar cases will do so, and that one may well watch the patient under bed rest without sacrificing much. This policy is distinctly unsafe. It builds up the group of cases which can be called controls, and which may some day be made use of by someone as a control group for comparative study with more aggressively treated cases. We are unable to determine whether or not these patients can overcome their disease without any assistance but bed rest. Many will do so, but they can not be selected. I have on several occasions made the remark that probably no one who has seen the beneficial results of collapse therapy in a large series of cases has the temerity to run voluntarily a series of controls.

If the operative risk is less than the almost certain risk attending the persistence of open cavities and positive sputum, by all means these patients should have the benefit of this added chance to recover. The mechanical and physiological principles of such therapy are obvious. Paralysis of one (the diaphragm) or more of the muscles of respiration on the diseased side, the splinting of and direct diminution in volume of the lung by artificial pneumothorax and the operations accessory to it (such as the intrapleural cutting of adhesions and phrenic paralysis), or the indirect diminution in lung volume by operations decreasing the volume of the hemithorax (again phrenic paralysis and thoracoplasty), all tend toward the same end, diminution in respiratory action of the lung, relaxation of the elastic tension of the lung with resulting concentric retraction of diseased areas, resulting in closure of dangerous cavities, diminution of toxemia and the encouragement of fibrosis. It would seem only logical that any procedure designed to cause intensified rest of diseased pulmonary tissue, to favor the closure of cavities, to shorten the period of hospitalization and to provide more or less permanent protection for the diseased areas is warranted, if without undue risk to the patient these objectives can be attained more surely and more rapidly and the patient returned more quickly to a position of some economic importance in the community.

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SYPHILITIC HEMIPLEGIA WITH REPORT OF CASE*

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HEMIPLEGIA has been known for ages. It is not a disease in entity, but is only a symptom complex. It always results from the destruction of the upper motor neuron leading to the uncontrolled activity of the lower motor neuron. There is complete paralysis of all the voluntary muscles of one or the other side except in case of some of the cranial nerves.

Etiologically there are five great causes of hemiplegia, viz., embolism, apoplexy or brain hemorrhage, thrombosis or arterial occlusion, infections, including syphilis, and tumors and other space-taking lesions.

This paper proposes to consider only the luetic type. Syphilis is one of the most important common causes of hemiplegia. There are five types, (1) the prolonged, which occurs in general paresis, (2) the slow type which accompanies luetic meningitis, (3) the rapid or syphilitic thrombosis, (4) the transitory or general paresis due either to vascular spasm or transitory edemas, and (5) hemorrhage from luetic vessels.

Syphilitic hemiplegia occurs most frequently in the third and fourth decades and syphilis is the most frequent cause of hemiplegia during this period of life. Many times hemiplegia is luetic though the blood examination is negative. A good rule is to treat all cases of hemiplegia of unexplained etiology, between forty and fifty, antiluetically regardless of history or blood findings.

Syphilitic thrombosis is the most common pathology of luetic hemiplegia. It's course and treatment in the acute stage is the same as other types of thrombosis. In the chronic stage the usual treatment of paralysis and contractures are fortified with antiluetic treatment.

Of all the types luetic meningitis responds best to treatment. This is the lesion sometimes called meningovascular syphilis, and cure is almost invariably to be expected if treatment is started before degeneration of the nerve trunk occurs. Hemiplegias from the above cause are rare but they do occur, and we believe it is the pathology responsible in the case we have to report. Luetic meningitis is not an uncommon lesion but it is not a common cause of hemiplegia or diplegia. Mercury and the iodides followed by arsenicals is probably the treatment of choice. It should be remembered that paresis may follow this condition, therefore, a course of Swift-Ellis treatment, or malaria may not be amiss.

Hemorrhage from luetic vessels in the brain uncomplicated by other types of vascular disease is very rare. Of over one hundred cases reported by Thomas only one showed this kind of lesion and it was questionable. He reports about eight cases of brain hemorrhage in syphilitic patients, but seven of these were complicated by generalized idiopathic arteriosclerosis. Robinson reports that he has not seen one case of syphilitic hemorrhage in 4 0 0 miscellaneous brains examined. The reason for this is easily understood. Hemorrhage from luetic vessels is always from an aneurysm. Luetic aneurysms in the brain are extremely rare. A prominent neuropathologist has reported that he had never seen one. Since Charcot proved that brain hemorrhages arise from minute sclerotic aneurysms we must conclude that luetic hemorrhage in the brain is a clinical and a pathological rarity probably never seen by most physicians. This point is stressed because most cases of luetic hemiplegia or paralysis coming on suddenly are

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treated by physicians as hemorrhages, with dire results to the patient's ultimate recovery. Treat them as you would a case of thrombosis.

The condition that we are reporting and the case that we propose to show is possibly not so rare, but so far as we can find in the literature, especially in the English language, there have been very few cases reported of this disease. We have seen two other cases though they did not occur in our practice and the diagnoses were made late and consequently treatment was delayed. In both of these cases the result was very poor as there was permanent degeneration of the nerves and a consequent paralysis on the affected sides.

CASE REPORT

Earnest Reynolds, age 37, male, colored.

Chief Complaints: Complete paralysis left side; headache; feeling of numbness in left arm and leg; partial loss of hearing; and feeling of queer aching in left arm and leg.

Family History: Mother living and well, age 53; father living and well, age 59; sister—one died nine years ago following an abdominal operation, presumably of coronary occlusion; grandmother on his father's side lived to be 107 years old; grandfather on his father's side lived to be 96 years old. No family history obtainable of any chronic disease in family as carcinoma, tuberculosis, lues, heart or kidney disease.

Past History: General health has been very good. Had only measles in childhood. Fracture of right leg four years ago. Otherwise patient has been in excellent health all of his life except for frequent head colds.

Gastrointestinal tract negative. Genitouninary—Has had gonorrhea several times but denies ever having had a primary lesion of lues.

Has been married twice, has three children living and well by his first wife, however she had two miscarriages. His last wife has had one miscarriage and is four months pregnant at present. He has been married to her two years.

On the morning of April 15, 1933, patient got up at 4 a. m. and built a fire. He felt perfectly well at this time. He then got back in bed and at five-thirty got up again and began to dress. While dressing his left leg began to get weak and his left arm felt funny. He also began to get dizzy and his head to ache. He went out on the porch for some air and sat down in a chair. He sat there about ten minutes and then found he could not get up as he could not use his left arm or leg. His headache became worse and his left arm and leg felt numb. He was carried into the house and put back in bed.

Physical Examination: At 8:00 a. m. on the morning of onset, patient was lying flat in bed in no evident pain but unable to use left arm or leg, and was in a drowsy state.

Head: Scalp, negative. Eyes: Moderate exophthalmus, Argyll-Robertson pupils, with slight dilatation of the left pupil. Face: Left-sided facial weakness, could not wrinkle left side of forehead and his mouth was pulled to right side. Nose: Negative. Ears: Hearing markedly affected, making it necessary to speak very loud when talking to him. Mouth: Marked dental caries, tongue coated, tonsils somewhat enlarged. Neck: Negative. Thorax: Symmetrical, expansion rapid but equal on both sides. Heart: Enlarged to the left, diastolic murmur present over the aortic area, regurgitation. Lungs: Negative. Abdomen: No tenderness, rigidity or masses present. Extremities: Marked muscular weakness in left arm and leg. Pulse was strong and regular. Motor reflexes on left side slightly diminished. Blood pressure, systolic 190, diastolic 110.

Physical examination, six days later after patient had been to the Bluefield Sanitarium: The patient is a well developed colored male. He is ambulatory but has to be assisted in getting about. Head: Scalp negative. Eyes: Same as at previous examination. Nose: Negative. Ears: Hearing slightly worse. Mouth and throat: Same as previously. Neck: Negative. Thorax: Symmetrical, expansion good and equal. No area of anesthesia. Heart: Negative. Lungs: Negative. Abdomen: Negative. Extremities: Biceps and triceps reflexes are present and normal. There is still muscular weakness in left arm and leg. Grips are about equal in both hands. Knee jerks are present. There is no area of anesthesia. Blood pressure: Systolic 214, diastolic 108.

Laboratory Findings: Urine: Negative. White cell count: 8000, polys 74 per cent, bands 35 per cent. Blood Wassermann: Four plus.

Diagnosis: Cerebrospinal lues.

Treatment: As soon as the diagnosis was made before the blood had been examined by the Wassermann test the patient was put on large doses of

mercury and iodide by mouth and as soon as positive Wassermann was obtained he was given arsenic intravenously in series alternating with mercury intravenously. At first treatments were twice a week but later only once.

Improvement was immediate and rapid. At first patient had to be helped into office for treatment but in a week he was able to get in with the aid of a crutch. May 22, just five weeks after onset of disease he was able to return to loading coal, his former occupation, and has continued to work without the loss of a day. Patient says that he feels better now than he has for years and comes in for his weekly treatments regularly.

It might be said further that the wife and children of this man all have negative Wassermanns.

SINUSITIS AND ITS COMPLICATIONS WITH A FEW RELATED DENTAL PROBLEMS*

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IN a discussion of a subject of this type, anatomic relations must be understood to appreciate fully the various phases presented, and we wish to numerate briefly some of the osseous and neurologic relations.

The antrum of Highmore is formed in the body of the maxillary bone. According to Gray, "Its base is formed by the lateral wall of the nasal cavity, and the apex extends into the zygomatic process. Its roof, or orbital wall, is frequently ridged between the infra-orbital canal and its floor is formed by the alveolar process. Projecting into the floor are several conical elevations corresponding with the roots of the first and second molar teeth, and in some cases the floor is perforated by one or more of these roots. The space below the floor of the nose and above the alveolar bone in the maxillary sinus is known as the sinus alveolaris." According to one authority, the dividing layers between the alveolus and the antrum consist of the alveolar covering or roof, an interposing layer of spongy bone, and the floor of the antrum. Whether teeth penetrate into the floor of the sinus depends upon the depth of the sinus alveolaris. This same authority says that the alveoli in the moderately thick alveolar process appear as flat, rounded convexities in the floor of the antrum. In such case, only the alveoli of the molars project, whereas the bicuspids or the canine are located at some distance from the floor of the antrum. Where a deep, downward extending sinus alveolaris is present, the alveoli of the bicuspid project into the antral wall with the most visible alveoli of the molars. But in a less degree and only rarely do the alveoli of the canine project. On the tips of the molars there are either several fine lacunae (blood vessels and nerve canals) or, after fusion of the lacunae, one large defect, in which case the tip of the root of the tooth projects free into the antrum. This variation in the thickness of the area between the floor of the antrum and the dental canal explains why one may have very carious teeth beneath the floor of the antrum and yet not have extension into the sinus. Such could not be acquired with a thick intervening bony wall, and it is equally easy to understand that if the wall were thin, a relatively insignificant apical abscess might cause an extensive antral disease. Theoretically, at least, one with accurate röentgenograms of the teeth, giving relations to the floor of the antrum should be able to predict the possibility of penetration of the floor of the sinus in extractions.

Nerves: The innervation of the maxillary sinus is through the trigeminal nerve. It is interesting to note that the same nerve supplies the lateral wall of the nose in its

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lower four-fifths. This may account for dental pain in an operated antrum where only a small intranasal window was made without curettage of the sinus mucous membrane, making injury to the dental tips impossible. It may also suggest a reflex pain in the teeth where a canine fossa window, as in a radical Caldwell-Luc, has been made and an encroachment on the infraorbital nerve suffered. Dental pain in a post-operative antrum rarely ever involves the actual root tip region and its nerves. It is referred to the teeth in the majority of cases through reflex arcs. Gray also states in speaking of trigeminal nerve reflex: "Pains referred to various branches of the trigeminal nerve are of very frequent occurrence, and should always lead to a careful examination in order to discover a local cause. As a general rule, the diffusion of pain over the various branches of the nerve is at first confined to only one of the main divisions, and the search for the causative lesion should always commence with a thorough examination of all those parts which are supplied by that division, although in severe cases pain may radiate over the branches of the other main divisions. The most common example of this condition is the neuralgia which is so often associated with referred pains, and these pains are at once relieved by treatment directed to the affected tooth. Many other examples of trigeminal nerve reflexes could be quoted, but it is sufficient to mention the more common ones.

Dealing with the ophthalmic nerve, severe supraorbital pain is commonly associated with acute glaucoma or with disease of the frontal or ethmoidal air cells. Malignant growths or empyema of the maxillary antrum or unhealthy conditions about the inferior conchæ or of the septum of the nose are often found giving rise to 'second division' neuralgia and should always be looked for in the absence of dental disease in the maxilla.

It is in the mandibular nerve, however, that some of the most striking reflexes are seen. It is quite common to meet with patients complaining of pain in the ear, in whom there is no sign of aural disease, and the cause is often to be found in a carious tooth in the mandible. Moreover, with an ulcer or cancer of the tongue, often the first pain to be experienced is one which radiates to the ear and temporal fossa over the distribution of the auriculotemporal nerve, a branch of the trigeminal."

Antral Disease: It is doubtful whether discussion of antral disease should be attempted without considering the adjacent ethmoids, frontals, and occasionally the sphenoids. In a paper dealing primarily with dental problems we shall take the liberty to eliminate any unnecessary discussion of these too often secondarily infected adjacent cavities. We feel a rational classification of the types of antral disease may be arranged as follows:

1. Simple Trauma.
   a. Dental trauma,
   b. External trauma.
2. Infectious Trauma.
   a. Dental,
   b. Rhinological.
3. Neoplastic.
   a. Benign,
   b. Malignant.

In simple trauma of dental origin we class the accidental fracture into or avulsion from the floor of the antrum of a tooth or its attached tissues. The external trauma are those that are received from blows to the maxilla fracturing into the body of the antrum with or without displacement into its cavity. We have had seven such cases in our practice.

In infectious trauma of dental origin we include only those cases which have developed from dental disease in the floor of the antrum. This presupposes a deep sinus alveolaris with a thin intervening wall over the tooth root, making it possible for a small apical abscess to initiate trouble in the antrum, literally by continuity. The vast majority of this type, however, are induced by primary rhinologic disease. It is not to be

forgotten that primary antral disease is capable of inducing marked nasal changes with secondary pansinusitis of major importance.

Neoplastic antral disease occurs frequently enough to deserve a place in classification. The majority, however, are benign. In the benign type are the primary cysts. In our practice about five per cent show cysts which we drained with a trocar through the inferior meatus and which yielded on exploration a yellowish serous transudate which coagulated upon standing. We did not study the cytology. In our experience we have never had a malignancy in any of the paranasal sinuses. In one hundred and eighty patients upon whom we have had microscopic study of the mucous membrane made by Dr. Fenton, of the pathology department of West Virginia University, no trace of malignancy has been reported. We have not clinically recognized such to be present in over five hundred operated antra. It does occur, however, and should always be looked for where the history or röentgenogram is suspicious.

Pathology: In pathology we have a fairly constant picture and the variables noted are due more to the state of disease than to its etiology. For the purpose of classification we present the following workable but incomplete arrangement:

1. Infectious.
   a. Simple empyema with secondary turgescence of the mucous membrane,
   b. Hyperplasia with or without polyposis,
   c. Submucosal abscesses,
   d. Mixed.
2. Neoplastic.
   a. Benign,
   b. Malignant.

The gross and microscopic findings will be considered together. In the infectious type, the earliest changes we find consist simply of a turgescence of the mucous membrane with an increase in the serous content of the tissue without material cytologic changes. If this is not resolved in a short time, we begin to note an increase in the round cells with, for a peculiar reason, an ingress of eosinophiles. This may progress to a slightly later stage where redundancy of tissue—precursors of polypi—may be noted. When this does occur, we begin to note a loss of cilia, derangement of mucus glands, and a marked increase in the round cells and myxomatous tissue. From this time on there is found a further disarrangement of cell structure, a further increase in foreign cytologic texture, and many small abscesses with areas of hyalinization. The latest stage of this condition is noted in the partial replacement of mucous membrane with a fibrous tissue element and an almost complete loss of cilia. We quote the pathologist's report on three patients who illustrate the various stages of disease:

1. *Chart No. 4246:* "The ciliated columnar epithelium is irregular in outline and somewhat polypoid in character. Portions of the stroma are loose in character; others are rather dense. The loose portions are infiltrated with lymphocytes, plasma cells and occasional polymorphonuclears and eosinophiles."

2. *Chart No. 3628* represents a still later stage: "The ciliated columnar epithelium is thrown into folds. The stroma is edematous and there is a proliferation of connective tissue about the arteries—periarteritis. Also there is noted extensive infiltration of lymphocytes with plasma cells. There is hemorrhage into the stroma. Many reticuloendotheliocytes with hemosiderin are noted."

3. *Chart No. 4647* represents the latest and, we feel, too often the permanent stage. "The superficial epithelium is hyperplastic and is thrown into irregular, papillary folds. The submucosa is edematous and loose in texture and is infiltrated with polymorphonuclear neutrophilic leucocytes, lymphocytes, plasma cells and eosinophiles. There is some hemorrhage into the stroma. There are other areas of denser connective tissue noted where the epithelium is flattened and the cilia are absent. Many areas of necrosis

(miliary abscesses?) are noted. There are areas where many young capillaries are seen, producing granulation-like tissue. Many areas of hyalinization can be identified. Many endotheliocytes with hemosiderin are noted, probably phagocytes."

In all this you will note a progress of the same condition, all stages of which combined produce a nonfunctioning membrane within an antrum, with a resulting clinical sinusitis.

Diagnosis: Let us again state that we wish to limit this discussion as nearly as possible to the dental phase of antral disease, but it is impossible to avoid mentioning the necessary conditions which must be established to determine the presence or absence of disease.

Clinical History: This may be negative in a latent antrum. There may be a history of dental perforation and even when so obtained, may be incorrect. Usually, however, there will be a lead, such as periodic blocking of the nose of unilateral type. There may be a history of nasal discharge varying from serous to purulent. In this climate most patients have some nasal secretions, with absence of pain. The only cases which regularly tend to have pain are those having acute empyema, and the pain is in the antrum or more often over Weihle's point. However, pain may be absent even in this type of disease. Patients occasionally present stating, "Dr. X. extracted a tooth and I could draw air into my nose from my mouth through the socket. In two or three days my nose began to stop up on that side and I had pain in my cheek bone and above my eye. About this time I noticed marked odors on my breath and pus from that side of my head." He feels he has a sinus infection, dental in origin. This kind of history, however, is seldom obtained and we should not expect it.

Rhinological Examination: Here again there is no constancy, as findings in the nose are not specific for sinusitis. This climate produces changed endonasal pictures which are considered within normal limits, but if one were in a more favorable climate these changes would be considered a definite pathological picture. Usually there is found a slightly altered middle and inferior turbinate which when unilateral is suggestive of difficulty. The alterations may vary from simple turgescence to polypoid or cystic degenertaion. There are usually changes in the mucous membrane of the middle meatus and secretions can often be demonstrated. When one looks into a nose whose midmeatus is blocked with polyps with free pus in the nose, and the source of polyps and pus is shown to be in the anterior group of sinuses, the examiner knows he is dealing with antral disease in a vast majority of cases.

Röentgenographic Study: We require five plain views to show all of the sinuses, four of which show the antra in different planes. Then, if further study indicates, we have three additional plates made with one of the halogen opaques in the antrum, showing the sinus in three planes. Disease can usually be demonstrated with röentgenograms.

Transillumination: This is a diagnostic procedure of some value which depends, however, upon one's experience and the type of transilluminator used. So many variants enter into this factor, such as structural characteristics, bony changes, and lack of experience on the operator's part, that it should be given only a small place in our armamentarium. Röentgenograms are much better for detail and infallible for reference.

Laboratory Study: We do not consider any patient's case studied properly until he has had white blood count, differential, red blood count, Wassermann or Kahn, and urinalysis. We have only recently had two patients with four plus Wassermanns with rhinologic symptoms and positive röentgenograms for disease within the antra. One had an early gumma of the septum, and the other, a child, had a syphilitic rhinitis and sinusitis. Of special interest is the eosinophile percentage of the white blood count. Here we find an increase, usually dependent

upon chronicity and whether there is an allergic background. One child with chorea and bilateral antral disease of hyperplastic and suppurative type had, over a period of three months, an eosinophile count of sixteen per cent. Dr. A. M. Reese of the zöology department of West Virginia University verified that the patient was free from intestinal infestation with protozoa. After adequate sinus treatment had been instituted, this eosinophile count dropped to five per cent. The urinalysis may reveal to us unexpected kidney disease.

Diagnostic Puncture: We do not believe that an antrum that yields only germs upon growth of antral culture establishes the presence of a clinical sinusitis. Antral lavage that returns clear does not rule out infection. One that returns pus, however, establishes definitely the presence of disease. It is to be remembered that a major disease may exist within the antral mucous membrane and yet not yield pus at the particular time lavage is performed. If an antrum were to be irrigated over a period of weeks, pus would at some time probably be obtained, but this is true of a recurrently infected, although an otherwise normal antrum. Lavage is excellent when positive, inconclusive when negative, suggestive only when cytologic pus or cultural germs are obtained. Organisms within an antrum are abnormal, but their presence does not establish a clinical sinusitis.

Halogen Opaques: We have used lipiodol and iodochlorol and find each acceptable. As stated above, they may be used for diagnostic purposes, but they also seem to have a place in therapy. Certainly the progress of treatment can be fairly accurately observed by repeated injections with röentgenogram record of such. We have had some excellent results, part of which may have been due to repeated lavages. We have no proof that halogen opaques do not lend themselves to therapeutic application. Results have seemed to us to indicate their value.

Symptoms: We stated that there may be none disclosed even upon careful questioning of the patient. Many are found accidentally in routine physical examination. However, there is usually a history of nasal blocking of variable degree. Pain, except in acute empyema, is usually absent and may not be present in a case where an antrum is full of pus. The following case report is illustrative:

Chart No. 430, Patient Aged 33: Patient presented on February 9, 1932, because of continued head cold wth nasal blocking, bilateral in character, intermittent, alternating with associated purulent discharge and an evident bronchitis. This had been going on for about three weeks. Examination at this time showed marked turgescent rhinitis, the left antrum being black on transillumination, while the right antrum and both frontals were clear. On February 11, 1932, the left antrum was irrigated and about two drams of yellow coherent pus was obtained. On February 12, 1932 patient felt much better, cough was definitely improved, nasal blocking was less and only slight nasal discharge was present. On February 18, 1932, this antrum was again irrigated and returned clear. The sinuses transilluminated normally, cough had disappeared and "head cold" complex was gone. Apparently a satisfactory resolution of the disease had been effected. The condition has not recurred to date.

This factor is so variable that it can not be considered cardinal by any means. Nasal discharge, even in a carefully studied case that has no demonstrable antral disease, may be present in the fall and winter in this climate. However, a nasal discharge suggests sinusitis, and when purulent in character or excessive in amount, is highly suggestive of probable sinus infection. Nasal secretions when observed to escape from a sinus ostium are sinus in origin. The source of other mild secretions must be proved. Occasionally a dental residue is obtained through the nose by way of the maxillary ostium. We have had one such patient.

Cough: This is one of the most constant findings in sinusitis, and especially where a rather marked antral disease is pres-

ent. The cough is but little more than clearing the throat, is usually moist, and consists of only one or two slight bechic blasts at infrequent intervals. We have several patients who had no other symptom than a persistent cough.

Chart No. 4058, Patient Aged 20, is illustrative: This patient presented on February 17, 1932, because of "difficulty with the lungs." Difficulty consisted of severe cough, moist in character and persistent. These attacks have been coming on yearly for the last four or five years. The patient states that a cold is contracted which is manifested by nasal blocking, with discharge which is purulent in character, to be followed in one week with bronchitis. The bronchitis is extremely severe and required from two to three months to quiet down. This case has been observed in several attacks by a physician who states that it was one of the most severe bronchitic manifestations he has ever seen, requiring anywhere from one-fourth to one-half grain of codein every four or five hours to control the cough. We observed one of these attacks at which time a bronchitis was present that closely resembled an allergic affair. An examination revealed mild turgescent rhinitis with the left antrum black on transillumination, with the right antrum and frontals clear, suggesting a left antral disease. The left antrum was irrigated on that date and about one dram of lemon colored pus was obtained. On February 20, the left antrum was again irrigated and about one dram of chocolate colored pus was evacuated, and the patient stated that the nasal complaint had markedly improved and cough was almost completely gone. On February 27, the irrigation showed the lavagings clear. On March 12, washings of the left antrum revealed only a few flecks. The cough had completely disappeared. Observations were continued to and including May 11, at which time a lipiodol series was done and the antral filling showed essentially normal findings.

Systemic Alterations: These may be below the average patient's appreciation and so mild as to make a history inaccurate. Usually there is temperature of a low grade type, seldom exceeding 99.2. Occasionally there is a mild sense of malaise and the patient may group his symptoms in some such phrase as "all run down." The pulse may be increased, but this is inconstant. The systemic alterations are not constant and certainly not specific. Continued head colds over a period of two weeks or longer in a patient of reasonably good health are highly suggestive of a collection of pus within one of the paranasal sinuses, and usually in the antrum. It is so constant as to suggest—if there be such for an antral disease—a pathognomic sign. It is remarkable when such a disease exists how quickly a few lavages will clear up a cold.

Complications: It is an accepted theory and probably an established fact that to maintain a healthy sinus certain factors must be present—adequate nasal space, functioning maxillary ostium, and active cilia in the sinus mucous membrane. There have recently been some very misleading articles on the physiology and pathology of antra. Two of the best articles on physiology were written by Hilding and Proetz. These are not conclusive, but follow the accepted lines. Some of those dealing with pathology were written by Pugh, Stevenson, Carmack, McLaurin and Costen. Special interest centers in the articles written by Spillman, Shaver, Denning and Bower. In the proceedings of the staff meeting of the Mayo Clinic in June, 1931, there seems to be undue criticism dealing with absorption from the mucous membrane of a sinus. This paper ignores miliary abscesses within the mucous membrane which has been proven present by practically every pathologist investigating diseased sinus membrane. It ignores submucosal abscesses, some of which we have seen large enough to contain a dram of pus. We feel the following case report is illustrative:

Chart No. 4213, Patient Aged 42: The gross pathology encountered at time of operation as copied from the operative sheet indicates "the left antrum was extremely interesting. As quickly as the bony window in the canine fossa was made and the mucous membrane approached, pus escaped through the canine fossa, apparently under pressure. This was interpreted as being a submucosal abscess which was large enough to occupy the anterior inferior third of the entire antral cavity. The wall of the abscess occupied roughly the region beginning at

the junction of the mid and inferior thirds of the anterior wall, coursing diagonally lateralward and then crossing backward down along the lateral wall of the antrum meeting the floor about the junction of the middle portion and then over and up along the mesial border, or the nasoantral wall, and joining up with the first named area and occupied at least two to four drams of potential space. In the superior portion of the antrum there was a triple loculated abscess hanging as stalactites from the roof, which occupied the entire middle superior third of the antrum. This was also found to contain liquid pus and drainage from the sinus was impossible except as it was absorbed into the circulation. The remainder of the mucous membrane had undergone hydropsical and fibrous changes, and there were many discrete polyps lying along the floor of the antrum. There is no doubt that this patient was absorbing pus, if it is possible for pus to be absorbed through bony canaliculi and their lymphatic circulations."

We feel this article is too brief and far too broad conclusions were based upon it to allow it full credence. A series of experiments dealing with poisonous substances injected into and beneath the mucous membrane of the sinus will yield a far different story. Many systemic conditions are associated with an established sinus disease, whose improvement is noted upon adequate treatment of the sinus, which makes us suspect some relationship. For brevity we shall enumerate only some of the conditions recognized as coming from foci of infections:

Bronchitis;
Bronchiectasis;
Chronic cervical and probably mediastinal adenitis;
Extension to adjacent sinuses with endocranial pathology;
Pharyngitis;
Laryngitis;
Eye disorders;
Primary pulmonitis;
Rheumatism;
Neuritis;
Heart disorders;
Asthma;
Kidney disease.

In fact, we believe that any disease established as being associated with, if not actually caused by a focus of infection can come from an antrum. Some are peculiar to such, especially bronchiectasis and nonallergic asthma.

Treatment: We should like to lay down this simple trite dictum: Meet indications in such a manner as to prevent complications with minimal amount of rhinologic interference and in such fashion as to accomplish the earliest eradication of disease and return the organ to its accepted normal. We shall limit this phase strictly to dental etiology, dividing it into the early and late cases.

Early Cases: By this we mean any time before the mucous membrane has become polypoid or hyperplastic. No time element is known. We like to have the dental fracture into the sinus closed at once. Keep the cavity clean with frequent lavaging through the inferior meatus or natural ostium. We do not believe it is good policy to irrigate through the dental socket for the necessary time to effect a resolution within the antrum. Maintain nasal ventilation. Control pain. Support the patient's general condition. We have had no complications and no residual sinus disease following this procedure. Two cases will illustrate this point:

Chart No. 1610, Patient Aged 21: This represents an early dental antrum before marked changes had become established. Fortunately for the purpose of record, this patient was first seen on November 17, 1930, at which time examination was made and röentgenograms of the sinuses obtained, which were interpreted as normal. Nothing further was heard from this patient until August 20, 1932, at which time she presented with a history of having had a tooth extracted from the floor of the right antrum. On August 16, twenty-four hours after extraction, she noticed swelling and soreness in the right side of the face, pain in the cheek, pus discharging from the right naris, with an associated foul breath. With this there was soreness back of the ear which radiated downward into the neck, accompanied by temperature elevation and malaise. There was no history of previous similar difficulty. At that time examination revealed definite evidence of a marked acute right maxillary sinusitis. The right nasal chamber was bathed with pus and the mid meatus

was filled with secretions. Röentgenograms were made and the right antrum was opaque, with some changes in the ethmoids. The dentist who had extracted the tooth was contacted and he stated that there was a perforation into the floor of the right antrum at the time of extraction. The right antrum was irrigated on August 23 and there was secured one-half ounce of flocculent, yellow, creamy pus of extremely foul odor, of acute nature and almost certainly due to a penetration into the antrum. On August 25, patient stated she felt much better. The antrum was again irrigated and about one-half ounce of creamy yellow, flocculent pus was obtained and the odor had almost completely disappeared. On August 27 and 30, we irrigated the antrum again, with a definite reduction in the amount and character of the secretions. On September 3, the antrum was irrigated and the lavagings returned clear. Mucous membrane, turbinates and mid meatus and transillumination of the involved antrum were entirely negative for continued disease. Röentgenograms were made, which showed the antrum clear. This case illustrates an early sinus infection, probably dental in origin, managed by antral lavage with apparent rapid resolution of pathology.

Chart No. 3990, Patient Aged 59, illustrates more extensive pathology at the time the antrum was penetrated, requiring more extensive repair with an apparent equally good result. This patient presented on September 8, 1931, stating that she had had three teeth extracted from the floor of the right antrum two weeks prior to this visit, and "the entire floor of the sinus," according to her dentist, "had fallen away." She had been able to draw air and even food through the dental rent. Foul odor with nasal blocking and "a hole" where the teeth had been extracted were noted by the patient. Her dentist had referred her in for consultation. Examination revealed, extending from the canine backward a distance of two centimeters, the floor of the antrum on the right side was wide open and the rent was at least one centimeter in width. The endoantral structure could be viewed through this rent and throughout the entire sinus pus and food debris were in evidence. Pus was found to be escaping through the middle meatus and that side of the nose was bathed with an extremely foul pus. We advised a right radical antrum with a plastic closure of the process. We performed a right radical Caldwell-Luc and a closure of the fistula in the floor of the antrum. This patient made an uneventful recovery, and her nasal discharge disappeared almost at once. The odor disappeared and the nose had assumed an essentially normal appearance three months later.

Late Cases: In the late cases a far different picture is found. We must establish a functioning ostium and mucous membrane or provide a new ostium. Drainage and ventilation must be had. When it has become established that we are dealing with a late case, some surgical procedure is imperative. Occasionally a good result is obtained with an intranasal antrotomy which provides ventilation, but the mucous membrane and its included disease is still present and remains so for variable periods of time. Too often we feel it may be permanent. Many of these cases go to radical sinus surgery, the purpose of which is to clean up effectually any adjacent sinus foci, to obtain nasal and sinus ventilation, and to rid the patient of the known infected hyperplastic and lifeless mucous membrane. We like to use the word "lifeless" in speaking of this mucous membrane, since we feel its function has been forever impaired if not actually destroyed. When it is removed, it is often replaced by normal functioning mucous membrane. This, unfortunately, is not always true. Such an operation is accomplished by the Denker, Caldwell-Luc, and other well recognized similar techniques. In brief, in the Caldwell-Luc, the technique consists of canine fossa window, debridement of the endoantral structure, and establishment of a nasoantral window in the inferior meatus. Such a procedure will seldom substitute a worse complex than the patient had at onset. It will usually greatly improve. The following case reports emphasize the difficulties encountered in the late cases:

Chart No. 3268, Patient Aged 26: Patient presented on August 29, 1932, with a history that about one year ago a tooth had been extracted from the floor of the left antrum, such tooth penetrating into this sinus. He was referred by the dentist to an ear, nose and throat man in a nearby city, who irrigated the antrum through the dental socket for about three weeks, and apparently, the patient

states, he was relieved of most of his active discharge. In July, 1931, he stated, he began to notice difficulty with the left side of the nose, consisting of blocking with marked nasal discharge but no odors. His complaint was limited entirely to the one side. At that time he consulted an ear, nose and throat man in one of the larger centers, who irrigated the left antrum through the inferior meatus for about three weeks, but this did not seem to relieve him of his condition. He was then advised to have an intranasal window resection. This was done and irrigation carried out through the antrotomy for three weeks with a marked improvement. However, he states, the condition has again recurred in an exaggerated form with nasal blocking and nasal discharge. With this he developed associated cough, temperature elevation and malaise. At no time had röentgenographic or laboratory work been done. Röentgenograms were made and revealed a tooth within the antrum. He was frankly informed that unless he was willing to have a Caldwell-Luc operation we were unwilling to manage his case further. Patient continued to have difficulty of practically the same character as when he presented. On February 8, 1932, we performed a submucous resection, left intranasal ethmoid and left radical antrum, and a tooth root was removed from the antrum. Subsequent visits up to and including June, 1932, show the nasal discharge had disappeared, patient had gained about ten pounds, the nasal picture entirely normal, antrotomy wide open and apparently satisfactory convalescence had been obtained.

Chart No. 2158, Patient Aged 32: This patient presents a most unfortunate dental complication which almost cost his life. Presented on January 1, 1930, stating that in a nearby city he had had a tooth extracted from the floor of the left antrum, which had penetrated the floor of the sinus. He was treated at the office of the dentist over a period of two weeks, during which time irrigations through the dental socket were carried out, with extremely foul pus being obtained through the left naris. During this time, he had a new complex with regard to the nose; namely, that of blocking which was unilateral and restricted to the left side, with associated nasal discharge, purulent in character, and extremely foul. With this he became very nervous, lost weight, and ran a slight fever and had an increased pulse rate. At that time we made a diagnosis of a marked left antral disease of acute character, probably dental in origin. His antrum was irrigated through the inferior meatus and about one-half ounce of creamy, yellow, extremely foul pus was obtained. The antrum was irrigated on January 24, February 2, 7, 19 and March 13, and pus continued to escape under pressure when lavaged, with no change in character. On March 13 he had some edema of the face on the left side. It had been suggested to him by a physician friend that a sojourn in Florida might clear up his condition. We felt at the time the better policy would be to clean up his established infection and then go to a more favorable climate for convalescence. This he declined to do and went to Florida for six weeks, during which time he continued to have nasal discharge, but he was definitely improved, due probably to rest and more favorable living conditions. He again presented at our office on January 26, 1931, with a history of practically the same symptoms for which he presented previously, and stated that following his vacation in Florida he came back to his home and after two weeks the disease recurred as previously. In addition to this he had developed attacks of vertigo which were so severe as to cause him to have to sit down to prevent falling. At that time, examination revealed identically the same findings as previously recorded, and in addition to the same findings as previously recorded, he had developed polypoid changes in the mid meatus and mid turbinate which were unquestionably a sign of established chronic disease. At this time röentgenograms of the sinuses were made and revealed entirely normal findings, except for the left ethmoid and left antrum which were markedly involved. A submucous resection, a left radical antrum and left intranasal ethmoid were performed on January 31, 1931. Following this nasal discharge was markedly improved and endonasal chambers were assuming normal appearance when seen on February 20, 1931. The patient developed a marked heart disease of neuromuscular nature that almost cost him his life. Whether the sinus disease produced his heart lesion can not be proved, but it is certainly highly suggestive. Incidentally, the organism present was a streptococcus.

Postoperative Symptoms: These are present in some patients and, when present, are very annoying to the surgeon. We have adpoted the policy of trying to grasp the total pathology, making the patient understand that this is his disease and that we are

willing to go the limit to rid him, if possible, of his difficulty. We do find, in a small percentage of cases, some anesthesia along the lateral wall of the nose, occasional swelling in the canine fossa region in the presence of an acute cold, and occasionally anesthesia of the gums. Hyperaphia of the canine tooth is rarely noted. We have not been able at any time to find a deviatilized tooth in a postoperative antrum that was proved to have come from the operation. We make that statement advisedly as we have had patients who said this or that tooth was dead. We referred them at once to their dentist, and reports so far have shown a vital reaction to the vitalitester and yielded negative radiograms. We have expected some dead teeth, and probably only our friends have so far reported—this may account for the results quoted. We do feel, however, that there has been an accepted routine developed for the management of these cases, and with the proper coöperation between the dentist and rhinologist its accomplishment is not at all formidable.

Pulpless Teeth: This is a question that elicits more "fire works" between the dentist and the rhinologist than any other. It should not. Unfortunately medicine, of which dentistry is only a branch, has no fixed laws; probably none will ever be formulated. The pulpless tooth may fall in this category. May we ask a few questions and let you and the future dentists answer them. Are pulpless teeth more susceptible to disease than the vital ones? Do "sick teeth" cause systemic and local disease? What are the early signs of trouble with a pulpless tooth? Is a pulpless tooth capable of producing primary infectious trauma? Is it true that a pulpless tooth is safer "out than in" and that a prosthetic replacement is entirely satisfactory to most patients?

It is an accepted fact that even vital structures are capable of becoming diseased without any apparent cause. Teeth are not immune to this principle. Pulpless teeth, it seems to us, are unusually so destined. The majority agree that "sick teeth" cause systemic and local diseases. There does not seem to be any well established symptoms of early difficulty about the pulpless tooth. Most physicians and dentists are satisfied that a pulpless tooth can and often does produce primary infectious trauma as has been defined within the limits of this discussion. We feel that in the presence of a definite injury to vital structures those of lesser importance may be sacrificed with impunity.

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SUSCEPTIBILITY TO POISONS

Many considerations have a bearing on the liability of workers to poisoning in the hazardous trades, Annette Fiske points out in an article in the November *Hygeia* on "Poisoning in Industry." Constitutional defects will unfit a person for this work. Nephritis, which damages the kidneys, makes elimination of poisons more difficult, while anemia adds to the dangers of poisoning by lead, benzine, aniline and similar substances because these poisons themselves cause a loss of red cells. A tendency to tuberculosis or heart trouble will also unfit a person for such work.

Sex also has a bearing on the problem, for the rate of plumbism is twice as high among women as among men workers. Women are most susceptible to plumbism between the ages of 18 and 23, while men are most susceptible later in life. Women are also more susceptible than men to sulphuric acid poisoning. Race and age too have their effect, Negroes and white workers showing a difference in susceptibility to various poisons, and youths showing greater susceptibility than adults.

Aside from such general differences, there are individual differences in susceptibility to poisoning, and there is no judging by a person's general health whether or not he will prove easily susceptible.

POSTGRADUATE WORK NEGLECTED

Indicative of the failure among many physicians to pursue needed postgraduate work is a survey completed recently by the Illinois State Medical Society. If the Illinois figures hold true nationally, 67 per cent of American doctors are doing no postgraduate work whatever.—*Medical Economics, Nov. 1934.*

STROPHANTHUS*

By Edward Podolsky, M. D.
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Strophanthus is one of the major heart remedies in medicine. However, in its primary form it is seldom used, but its glucosides have attained a definite place in cardiotherapeutics. From strophanthus in 1872 Fraser isolated a glucoside which he named strophanthin. Since then several varieties of strophanthin have been recognized: the h-strophanthin, extracted from strophanthus hispidus, k-strophanthin from S. Kombe, and the crystalline g-strophanthin from S. gratus.

K-strophanthin (Strophanthinim, U.S.P.) is a mixture of glucosides which is not uniform. Strophanthins of this type are used particularly in the United States and England. The g-strophanthin is a crystalline strophanthin obtained from strophanthus gratus by the method of Thoms. It is said to be identical with the glucoside derived from acocanthera ouabaio, but Tiffeneau believes "that the identity of the ouabain of strophanthus gratus and that of acocanthera ouablo was not absolute." This strophanthin is used widely in Germany. The ouabain of Arnaud is a crystalline strophanthin obtained from strophanthus gratus, but by a different process from that of Thoms. This preparation is used a great deal in France.

It is unfortunate that there are so many varieties of strophanthus available. This has served to confuse them in the minds of many physicians. However there are now available preparations, particularly ouabain, which are definitely standardized, and which can be used with assurance that they are therapeutically efficacious.

Strophanthus was studied with a great deal of enthusiasm by Fraenkel who was a firm believer in its effectiveness in the treatment of advanced heart failure. His results were confirmed by many investigators, but it was also shown that serious accidents and even sudden death occurred too frequently, especially when the drug was given by the intravenous route. Its use was then naturally abandoned for it was felt that strophanthus was too dangerous a drug for general use.

Among the really great cardiologists who did not lose faith in strophanthus was Vaquez, who was so impressed by the good results obtained from its use that he determined to investigate the reasons for its toxic action, and to find a substance which would retain its undoubted high therapeutic value without the dangers shown to exist in the strophanthus in general use at that time. He soon learned that the way in which strophanthin was prepared, as well as the sources from which it came, had much to do with its toxicity, and also that the preparations were not constant in either activity or toxicity.

In 1888 Arnaud, professor of chemistry at the Natural Museum, Paris, succeeded in isolating the active principle of acocantheria ouablo, a tree the wood of which yielded the poisonous extract employed by the Somalis for their arrows. This active principle proved to be a glucoside which he called ouabain. Vaquez became particularly interested in this new and apparently more desirable strophanthus derivative. He gave over 2000 injections without any serious accidents. Chemical examination shows that ouabain has the formula $C_{30}\ H_{46}\ O_{12}$. The other strophanthin derivatives have the formula $C_{31}\ H_{48}\ O_{12}$.

Vaquez has probably had more experience with strophanthin than any other cardiologist. Concerning its physiogical action he says: "Strophanthus is above all a heart

*Original Paper.

poison, on which organ it has a remarkable action. Soon after the administration of a lethal dose the heart beats more slowly, the ventricles contract more and more, their output diminishes and death ensues when the heart rigid, contracted and empty of blood, stops on account of excess of function. Finally it has been proved that the arrow poison acts on the myocardium itself, and not on the nerve filaments. The arrest of the heart does not depend on the intervention of the vagus or the medulla or the cord . . . Strophanthus, then, is the heart medicine par excellence, the effects of which are exerted exclusively on the myocardium without intervention of any other factor. Perhaps it affects conductivity also, as Jameson has suggested, by lengthening the conduction time. The elimination of strophanthus is more rapid than that of digitalis, but it is not known how it occurs. At all events, the substance is not evacuated by the kidneys, nor the salivary glands, nor by the alimentary tract, and on account of its rapid disappearance it has not a cumulative effect." Vaquez further believes that strophanthus becomes fixed in the myocardium after the manner of a stain or a toxin, and "that the fibers react more easily to the contraction owing to the fact that the myocardial tonicity has returned to the normal."

The favorable results which have been obtained with the therapeutic use of strophanthus in auricular fibrillation and the ill effects which have been noted following its administration after digitalization, indicate that it diminishes conductivity.

On the gastrointestinal tract strophanthus in large or long continued doses may produce anorexia, nausea, vomiting or diarrhea. Loss of appetite suddenly developing during strophanthus medication suggests that the drug had best be stopped.

Vaquez believes strophanthus preferable to digitalis whenever cardiac insufficiency is associated with loss of myocardial tone. While digitalis has a marked effect on contractility, excitability, and conductivity of the myocardium it has very little influence on myocardial tonus. This was amply proved by Baraige in a series of electrocardiographic studies; Japelli and Meldolesi further confirmed this. These studies tended to show that small doses of strophanthin acted upon the tonus and contractility of the heart by determining a reinforcement of systole and slowing of the pulse.

The loss of myocardial tonus takes place either in acute dilatation or in the course of progressive cardiac insufficiency such as follows valvular lesions, subacute myocarditis, etc. Strophanthin has been found also to be an effective diuretic, its diuretic action becoming manifest as a rule within 24 to 48 hours after beginning treatment.

Strophanthin has also been used with good results in cases of acute dilatation of the heart. In cases which are manifested by angina pectoris or by pulmonary edema quick action is essential, and this may be obtained by an intravenous injection of strophanthin or ouabain. In progressive insufficiency of the left heart with the sudden supervention of increased blood pressure, strophanthin effects a noteworthy improvement within 24 hours. The precordial pain and dyspnea diminish, the pulse becomes slower and more regular, and the increased blood pressure is cut short. This is due in effect to the action of the drug on the tonus of the myocardium, which has overcome the peripheral resistance.

Certain cases of right ventricular insufficiency are refractory to the action of digitalis. This lack of action on the part of digitalis may be due to the clogging of the circulation (enlarged liver) or to the widespread peripheral edema, or perhaps to the fact that disturbances of conductivity have followed loss of myocardial tonus. The ascits should be relieved by the proper means and strophanthin or ouabain therapy instituted for two or three days. This measure often succeeds when digitalis therapy fails. In some cases it has been found that when digitalis is again given it acts in a more efficient man-

ner, because myocardial tone has been improved by the strophanthin. This would seem to be in the nature of a reactivation of the digitalis by the strophanthin. Dimitracoff records several cases in which patients suffering from complete cardiac insufficiency and generalized edema of long standing, who had taken digitalis with no effect were relieved by the successive administration of ouabain, digitalis and theobromine.

In certain cases of arrhythmia, more particularly in attacks of tachycardia which are apt to be brought on when the auricle is very much distended, ouabain is often indicated, first to arrest the attack, and second to overcome the effects of dilatation.

In the heart disease of pregnancy strophanthin has been given by Fiessinger to pave the way for subsequent digitalization, which is brought on quicker and more effectively. Jamison and Jones have found ouabain very useful in cases of aortic regurgitation and the large hearts of syphilis, with failure of the left side of the heart.

Criep found that ouabain produced marked slowing of the heart rate and the disappearance of a pulsus deficiens in five to fifteen minutes after an injection of the drug. In cases with sinus mechanism but advanced heart failure, rheumatic and luetic, congestive as well as anginoid in type ouabain in many cases gives the patient marked subjective relief.

The contraindications of strophanthin are: advanced cardiac cachexia with generalized serous infiltration, where the degenerated myocardium is incapable of responding to even strong stimulation; inflammatory complications of the lungs; hepatic insufficiency; chronic kidney involvement; infective endocarditis engrafted on primary valvular cardiopathy, constituting a form of malignant endocarditis running a slow course that defies every kind of treatment.

Strophanthin may be administered orally, intramuscularly and intravenously. Cornwall has also suggested the sublingual method. The intravenous route is the most direct, and the one to be preferred in emergencies. In most cases where large or moderately large doses are required, the hypodermic route is to be used. In cases where small or moderate doses are indicated the oral or the sublingual route is employed. Cornwall believes that in the sublingual method a considerable portion of the dose is readily absorbed through the limited area of sublingual mucous membrane into the closely subjacent blood vessels.

Intravenous strophanthin treatment was recommended twenty-five years ago by Fraenkel. He believed that this was the most satisfactory means of giving the drug to obtain its maximum effect. In Germany this method is preferred to all others, particularly in the treatment of chronic cardiac insufficiency. In Germany the single dose of 0.1 gm. is generally not exceeded, and as the day's dose not more than 0.3 gm. is given. It is also thought among German physicians that it is safer if the patient has not been digitalized.

In the United States the tendency is rather for administration by other routes except in grave emergencies. In ambulant cases of fatty or fibroid degeneration of the heart with only moderate shortness of breath on exertion, and little or no edema, the dose of 1/1000 of a grain, given sublingually three or four times a day is sufficient. In the more advanced cases which are still ambulant, doses of 1/500 of a grain given three or four times a day may be required. In the more severe cases which are confined to bed 1/500 of a grain six times a day should be given.

In the very severe cases of myocardial failure the dose of 1/250 of a grain given hypodermically, intramuscularly or intravenously and repeated once or twice at four or six hour intervals may be required. In grave emergencies, as in acute dilatation, a single dose of 1/100 of a grain may be given. In conditions of heart failure occurring in the acute infections such as diphtheria and pneumonia the doses indicated above may be used.

There are many physicians who prefer to use strophanthin in the form of ouabain. Ouabain is available in tablets, varying in strength from 1/480 to 1/120 of a grain; ampoules containing from 1/240 to 1/120 of a grain per c.c., and in solution for oral administration. In emergency cases, according to the severity of the condition, 1/240 to 1/120 grain is given intravenously once in every 24 hours. Four doses at intervals of twenty-four hours each, will, if it is at all possible to secure any relief, be sufficient. Intramuscular injections may be given in doses of 1/240 to 1/200 of a grain, using only ampoules prepared especially for intramuscular use. This is also best given at intervals of 24 hours for three or four days.

The solution of ouabain which is made specially for oral administration is given in doses averaging 100 drops per day. According to the severity of the disease the dose is from 30 to 50 drops for the milder heart affections and 100 drops for the more severe types of aortic regurgitation.

Ouabain is a drug which cannot be given indefinitely; the average number of days is about four during which time it should be given. In children over five years of age the dose is two or three drops a day for each year of age. The specified dose can be given all at once or in divided doses, according to circumstances. It should be given fasting or between meals in a little sweetened water or milk.

In tablet form ouabain may be given in doses of 1/240 of a grain, six to eight tablets a day for periods of two or three days, repeating every twenty or twenty-five days.

The solution may also be given rectally in urgent cases of acute dilatation of the left heart with acute pulmonary edema. For this purpose 50 drops, diluted in 50 c.c. of water with about 10 drops of laudanum, may be used. This is particularly valuable when the patient is suffering from gastric upset or where a vein is not readily available.

Strophanthus and its derivatives were never intended to supplement digitalis. The two drugs have essentially different actions. Digitalis by its moderating action on the excitability and conductivity of the heart, regulates cardiac rhythm, whereas ouabain improves myocardial tone. From this point of view ouabain supplements the action of digitalis, the two substances constituting by their judicious successive employment a particularly valuable therapeutic complex. Certain cardiologists, among them Laubry and Pezzi, Danielopolu and Beltaceenu have pointed out that ouabain and digitalis can very well be administered at the same time, in spite of the prejudice against such a combination in this country and in Germany.

TUBERCULOSIS ABSTRACTS

Furnished through the courtesy of the West Virginia Tuberculosis Association

To determine the presence of pulmonary tuberculosis requires alertness and penetrating search. To measure the activity of the disease once the diagnosis has been made and to gauge its progress equally challenge the doctor's skill. Measurement of Activity in Pulmonary Tuberculosis was the subject of a symposium at the last annual meeting of the Massachusetts Medical Society. The entire symposium, which was printed in the *New England Journal of Medicine*, August 9, 1934, is well worth careful reading.

Measuring Activity of Pulmonary Tuberculosis: A tuberculous process that is in a state of instability, whether tending to progress or retrogress, is said to be active. An active tuberculous process may be "latent" and cause no symptoms (pathological activity) or it may cause reactions of which the patient is aware (clinical activity).

All degrees of progression, retrogression, quiescence, and healing may be present simultaneously in the same lesion. Little wonder then that the practical clinician who tries to determine whether or not tuberculosis is active, should grope for his bearings. Only by a careful appraisal of all scraps of information can he discern the disease trend.

Since sanatorium experience teaches that a tuberculous process may spread in an amazing manner without clinical symptoms or signs, one is justified in inferring that there must be in the population many individuals who are unaware that they

are harboring a progressive tuberculous process. This is strikingly borne out by a report by Fellows, who studied the physical findings of 13,000 employees of the Metropolitan Life Insurance Company regularly examined with the aid of the fluoroscope and, when indicated, with stereoscopic films. Of the 141 cases discovered, 33 per cent were symptom-free and 58 per cent had no râles.

Symptoms and Physical Signs: The constitutional symptoms of fever, rapid pulse, loss of weight, fatigue, malaise, irritability, night-sweats, gastric disturbances, are indications of toxemia and activity.

Localizing symptoms, such as frank pleurisy, wet or dry, indicate an extension of involvement, hence activity.

Hemoptysis should usually be considered an indication of activity.

Increased cough and expectoration may indicate a recrudescence, especially where a previously mucoid sputum becomes mucopurulent and where, in some cases, the Gaffky count is increased.

An increase of physical signs may accompany a very definite improvement in the clinical condition with a clearance in the x-ray shadows, and in a few cases physical signs may decrease while patients apparently progress unfavorably.

Despite the reports that persistently positive sputum is consistent with health, it is difficult to divorce one's self from the impression that a positive sputum does not indicate at least a smoldering pathological activity.

Elastic fibres when found in the sputum always indicate activity. Cavity is all too frequently silent from the standpoint of physical signs.

Spontaneous pneumothorax in the tuberculous is generally considered as the result of activity, though at times it is impossible to demonstrate such activity by the röentgenogram.

X-rays: Serial röentgenograms give us by far the best single examination information obtainable. Shadows with ill-defined, nebulous borders seem to indicate activity, while those with clear-cut borders are more liable to indicate an inactive condition.

In certain instances, however, particularly in the advanced cases with a multiplicity of lesions, it must be admitted the x-ray has limitations, minor progressions or remissions in activity are obscured.

Tuberculin: The tuberculin test is of no help in determining activity. Badger concluded—"The individual response to measured dilutions of tuberculin bore no consistent relation to the activity or inactivity of the tuberculous process."

Bredeck reports that with the Schilling count tuberculin subcutaneously injected gives very definite information as to activity, but to date our investigations, still incomplete, indicate that this points to sensitivity rather than degree of activity.

Leukocyte Count: The leukocyte count affords us a method of obtaining a biopsy, so to speak, which mirrors the pathological tuberculous process and thus gives valuable prognostic information. In Medlar's interpretation the polymorphonuclear, the lymphocyte and the monocyte are all concerned in the pathological processes at some time during the infection. Some investigators favor the polylymph ratio, others the monocyte-lymph ratio. Recently a slide rule has been devised by which Medlar's pathological conception, based on the leukocyte count can be expressed in the form of an index.

While the Schilling count is of distinct value, yet considering the extra time, the skill required in differentiating the cells, and the possibility of error, it is our belief that, with the possible exception of acute tuberculous process, it gives no added information that cannot be obtained from Medlar's formula.

Sedimentation Test: The sedimentation test may indicate activity of the lesion but cannot be depended upon to foretell impending disaster. It conforms rather snugly to clinical impressions. Like the leukocyte count we do not believe that in the very early stages of minimal disease it gives as much information concerning activity as can be obtained by serial röentgenograms.

CEREBROSPINAL MENINGITIS

A Case Report With Unusual Bacteriological Findings

By BOBB SPALDING SPRAY, PH. D.
and
FABRY L. HAWK

The following interesting case is briefly reported in order to put on record the first evidence, as far as we can determine, of the presence of a strain of alkaligenes fecalis under conditions apparently warranting the assumption of its etiological connection with a fatal case of cerebrospinal meningitis.

A white male infant (R. C.), nine months of age, was ill with bronchopneumonia for

some two weeks following an attack of whooping cough. This condition cleared up and the temperature returned to normal. On the following day a bilateral otitis media developed, with considerable pain and suppuration in both ears. The temperature again made a sudden and alarming rise, vomiting occurred, and the patient was removed, under the direction and care of Dr. G. W. Phillips, to the County Hospital on May 21, 1934.

Physical examination showed both ears to be infected. There was considerable tenderness over the back of neck and the head was retracted. The eyes and pupils were partially dilated and the patient was in coma. The chest still revealed slight moist râles from the preceding pneumonia. The abdomen and extremities were negative.

The patient died on the day following admission to the hospital.

Diagnosis of cerebrospinal meningitis was warranted by the physical signs, and a spinal fluid specimen was submitted to the laboratory.

Laboratory findings, May 22, 1934:

Turbidity—Very cloudy;

Globulin—Four-plus;

Sugar—Absent;

Cell count—21,440, chiefly polymorphonuclears;

Gram stain—Showed gram-negative organisms both intra and extra-cellular in great abundance.

These organisms were at first assumed to be meningococci, which they superficially resembled. However, more intensive examination showed them to be short cocco-bacilli in pairs and short chains of three or four organisms.

The fresh spinal fluid plated on nutrient extract agar and on North's gelatin agar showed a profusion of colonies, all identical in colony morphology, on both mediums. The abundance of growth on nutrient agar, alone, ruled out meningococcus. Stains from a number of colonies, selected at random, revealed a short, plump gram-negative bacillus, identical in morphology with the organisms observed in the original spinal fluid specimen. No other organisms nor colonies were found on the plates.

A pure culture was isolated for cultural study, which revealed the following characteristics:

Morphology—A short, plump gram-negative bacillus, showing slight bipolar staining tendency. No spores nor capsules observed.

Motility—Active in broth and from moist agar slant.

Agar plate colonies—Translucent, round, entire, slightly opalescent, irridescent on reflected light.

Endo's medium—Colonies small, round, colorless dew drops.

Gelatin stab—Not liquefied, growth restricted to stab.

Broth—Moderate diffuse turbidity, with thin pellicle.

Litmus milk—No initial acidity, becoming strongly alkaline, opalescent and pellucid.

Fermentation—Negative in dextrose, lactose, sucrose, arabinose, xylose, inositol, dulcitol, adonitol and salicin. All sugar broths becoming strongly alkaline to brom-cresol-purple.

Indol—Negative.

Nitrate—Not reduced to nitrite (three repeated tests).

Lead acetate and peptone iron agar—Not blackened (no H^2S).

Pathogenicity—Inoculation of two c.c. of broth culture intraperitoneally into a guinea pig failed to produce any signs of infection.

From these characteristics, with the exception of failure to reduce nitrates to nitrites, this organism checks with the description of alkaligenes fecalis, which we consider it to be.

Discussion: We report here a single case of cerebrospinal meningitis, in which an organism was observed in great abundance both intra and extracellularly in the spinal fluid. The same organism was recovered in pure culture, and identified as alkaligenes fecalis.

Inasmuch as this organism is commonly considered entirely nonpathogenic, and has not, to our knowledge, been reported in meningitis, we wish to place the case on record as one in which this organism was present under conditions which would appear to warrant the conclusion that it was the specific infecting organism responsible for death.

PRESIDENT'S PAGE

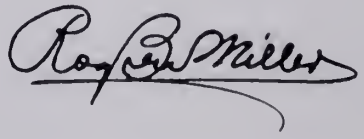
Hail and Farewell

This is my twelfth and last message to the medical profession of West Virginia through the medium of this President's Page. On the first of January, the reins will be taken over by my worthy successor, Dr. R. H. Walker, whose rugged interest and whose clear vision will give the doctors of this state, dependable and reliant leadership in 1935. I take this opportunity to wish Dr. Walker a successful and profitable administration.

Throughout the past year I have spoken to you through this page on many subjects. If my modest efforts at journalism have helped any of you to better understand some of the problems of organized medicine, then I am amply repaid for my wanderings in a hitherto unknown field. Frankly, the development of this page through the year, which was at first a tedious hardship, has lately afforded me no small amount of pleasure.

I want to especially thank the so-called Old Guard for their wise council and to praise them for their continued and unselfish interest in the welfare of the medical profession of West Virginia as a whole. I want to thank my good friend, Mr. Joe W. Savage, for his wise council and expert advice in the administration of the Association's affairs.

So I bring my administration to an end with a heart filled with gratitude for the wonderful support you have given me, and with the wish that the New Year will bring all of you the happiness and prosperity you so richly deserve.



President.

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OUR LEGISLATIVE PROGRAM

The next session of the West Virginia legislature will convene at Charleston on January 9, 1935. Every member of the house of delegates and every member of the state senate has a family doctor. In addition many of them have numerous friends in the medical profession. Now is the time for the members of this association to talk quietly and earnestly to the delegates and senators about the association's legislative plans.

Although the legislative program of the association will not be definitely outlined until the council meeting on December 13, it becomes more and more apparent that the primary legislative objective of the association will be some form of medical supervision and medical control of the state institutions caring for the sick. It is along this line that our members should concentrate.

Let us review briefly the arguments in favor of the above mentioned medical control and supervision.

1. Lack of medical supervision destroys the incentive for a superintendent and his staff to keep abreast of modern methods of treatment. The superintendents get little praise for splendid results and less blame for poor results.

2. The State Board of Control has accomplished splendid results in building up the equipment and facilities of the state institutions but the Board of Control is a lay body and should not be expected to pass on the type of medical work that is being done.

3. Considerable improvement has been made at most of the state institutions during the past eighteen months. We believe this improvement was brought about chiefly through the coöperation between the administration and the medical association. This improvement, however, still leaves much to be desired and can never be of a permanent nature until there is a statutory provision to perpetuate a medical supervision plan. The fact that improvement has been made is the strongest indication that our efforts should be continued.

The plan which will be submitted by our association will probably call for the appointment of a "Hospital Board of Governors", to be appointed by the Governor, and the creation of a Bureau of Hospitalization in the state health department. If this is accomplished, the Board of Governors will undoubtedly be a bi-partisan board selected from lists submitted by the West Virginia State Medical Association. It will be the responsibility of the association to keep the appointments entirely free from politics. We believe that can be done without difficulty.

Under the above plan the Board of Governors will appoint the superintendents of all the state institutions caring for the sick and, through the Bureau of Hospitalization of the health department, will keep constant medical supervision over these institutions. Complete uniform records will be worked out for the hospitals and standards of care and treatment will be specified. Original research will be encouraged. The Board of Control, however, will continue its splendid work in the entire business management of these institutions.

We believe that the present administration is in sympathy with the above program and we hope that every doctor in the state will familiarize himself with this program so that he can discuss it honestly and intelligently with his acquaintances in the House and Senate.

CONFERENCE OF SECRETARIES

The annual conference of county society secretaries of the West Virginia State Medical Association will be held at the association headquarters on Thursday, January 3, 1935. We take this occasion to urge every county secretary in the state to be present for this very important conference and to bring the president of his society along with him.

That the practice of medicine has not undergone any drastic changes during the past year has been due in a large part to the close coöperation and harmony existing between the state association and its component societies. Through this state-wide organization we have been able to successfully cope with the many medical problems originating through the FERA plan of medical relief. After reading editorials in other state medical journals we are inclined to believe that our association has rendered a very definite service not only to the profession but to the relief administration as well. In any event, FERA medical treatment is still in the hands of the family doctors and the relief administration is securing unusually good results through the plan which our state association and its county societies are carrying out.

CHARLESTON JOURNAL CLUB

Several years ago the association looked somewhat askance at the organization of the Medical Review Society at Huntington. The Medical Review Society was organized strictly for scientific purposes. Its membership was somewhat limited and it was felt that this organization might detract somewhat from the work and activities of the Cabell County Medical Society. So far as we have been able to ascertain the Medical Review Society of Huntington has not in any way competed with the Cabell society.

A somewhat similar organization has recently been formed in Charleston and is known as the Charleston Journal Club. This organization meets the third Monday of each month and is open to all members in good standing of the Kanawha Medical Society. The purpose of the organization is to abstract current medical literature from recent journals. The program rotates and two abstracts are presented at each meeting. The organization has no dues. Dr. G. H. Barksdale is president; Dr. M. L. Bonar, vice-president and Dr. W. L. Cooke, secretary.

Perhaps the organizations of these special societies is due in some degree to the inroads of economic subjects on county society programs. If that is the case, we hope the time will soon come when medical practice will resume its normal status and the discussion of economic subjects reduced to an absolute minimum.

NEXT YEAR'S MEETING

The dates for the sixty-eighth annual meeting to be held at Wheeling in 1935 have been fixed for Monday, Tuesday and Wednesday, May 6, 7 and 8. These dates were recently selected by the convention committee of the Ohio County Medical Society and confirmed by the committee on scientific work.

Headquarters for the Wheeling meeting will be at the McLure Hotel and, with the exception of sectional meetings, the entire convention will be held at the McLure. The McLure is now ready to book advance reservations for the Wheeling meeting.

The committee on scientific work held its first session at the association headquarters in Charleston on November 19, at which time work was started on the scientific program. A tentative outline has already been made up and a number of outstanding national leaders have been invited to address the Wheeling meeting. The committee voted unanimously to limit all scientific presentations to twenty minutes, all prepared discussions to five minutes and all extemporaneous discussions to three minutes.

One of the features of the Wheeling meeting will be a series of dry clinics to be held at the Ohio Valley and North Wheeling General hospitals on Monday morning, May 6.

COUNTY SOCIETY NEWS

PARKERSBURG ACADEMY

The regular monthly meeting of the Academy of Medicine of Parkersburg was held at the Elks Club on the evening of November 1 with Dr. E. W. Crooks, president, presiding. A fine dinner was served at 6:30 o'clock and the meeting followed.

Speakers of the evening were Dr. R. H. Walker, Charleston, president-elect of the state association, and Mr. Joe W. Savage, state secretary, who discussed Dr. Walker's address. Dr. Walker and Mr. Savage both talked on economic problems pertaining to the profession in West Virginia. Dr. Walker also pointed out the need for medical supervision over the state institutions.

WELCH ENGLAND, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its October meeting at the Logan General Hospital, Monday, October 22, at 8:00 p. m. Twenty-four members and five visitors were present. The society was the guest of the staff of the Logan General Hospital. Dr. W. E. Brewer outlined in detail the object of the newly formed hospital, that is, to make it one of the best hospitals in the state and asked the physicians to coöperate with the staff members in securing that end.

Dr. Ivan Harwood, urological staff member of the hospital showed some x-ray pictures of pathology of the genitourinary tract. This was quite interesting and brought forth a number of questions.

VIRGIL A. DEASON, *Secretary*.

OHIO COUNTY

Dr. Allen F. Voshell of the University of Maryland, Baltimore, was the scientific essayist at the November 9 meeting of the Ohio County Medical Society which was held in the solarium of the Ohio Valley General Hospital. His subject was "Low Backaches". The discussion was led by Dr. J. Schwinn, Dr. John O. Rankin and Dr. H. W. Weiler. Dr. Voshell's subject was of considerable interest to all the members and was followed by a lively discussion. RUSSELL C. BOND, *Secretary*.

CABELL COUNTY

The November meeting of the Cabell County Medical Society was held at the Hotel Prichard on Thursday the eighth. Dr. C. B. Morton of the Department of Surgery of the University of Virginia was the scientific essayist. His subject was "Para-Thyroidism". Dr. Morton's subject was one of considerable interest to the members and a general discussion of the topic followed its presentation.

After routine business was disposed of the meeting adjourned until December.

EDWIN MATTHEWS, *Secretary*.

MONONGALIA COUNTY

The November 13 meeting of the Monongalia County Medical Society was held at the Hotel Morgan in the Green Room. Dinner was served at 6:00 p. m. Following this, the meeting was called to order by Dr. B. M. Stout, president. After routine business was disposed of the scientific program was presented.

Dr. Brinley John presented an essay on "Post-Operative Paralytic Lues". Dr. W. L. Madera addressed the meeting on "Radiation Therapy of Acne Vulgaris". These two subjects being of general interest brought forth a lively discussion of both topics.

G. R. MAXWELL, *Secretary*.

KANAWHA COUNTY

The eleventh regular meeting of the Kanawha County Medical Society was held on November 13, at the Daniel Boone Hotel. The scientific program was presented by Dr. G. G. Irwin who had for his subject "Some Diseases of the Genito-urinary Tract". This topic was presented in symposium form for the general practitioner. Dr. J. U. Rohr led the discussion.

A discussion on "Some Basis of Fees Charged" took place after which the election of the nominating committee for the selection of officers for the year 1935 was held.

Personal Note: Dr. John E. Cannaday was re-elected for a three-year term to the Board of Governors of the American College of Surgeons.

ANDREW E. AMICK, *Secretary*.

FAYETTE COUNTY

The November 9 meeting of the Fayette County Medical Society was held at the Hill Hotel, Oak Hill. The meeting was held several days in advance of the usual time so that the members might hear the paper prepared by Dr. C. W. Stallard for the meeting of the Southern Medical Association. The meeting was called to order by Dr. W. P. Bittinger, president. Routine business of the society was disposed of and the scientific program followed with the reading of Dr. C. W. Stallard's paper, "Acute Fractures of the Spine; Diagnosis, Treatment and End Results of 300 Cases." Dr. Stallard's paper was generally discussed and regarded by the members as most excellent.

The medical relief committee reported that they had not had any requests in regard to ironing out any medical relief service difficulties.

The meeting having no further business to consider adjourned until December.

RALPH HOGSHEAD, *Secretary*.

AVERAGES MAY HARM

"Children are being wronged by enforced molding to the means of mass measurement," Dr. I. Newton Kugelmass says in the November *Hygeia* in an article entitled, "The Myth of the Average Child." "Standardizing plastic youth into average patterns is detrimental physically to growing children, troublesome psychologically to perturbed parents and false biologically to the national ideal. Children are individuals, not average, in their body build and in their organs and tissues even to the single cells, 25 trillion in number, that compose the human structure. * * * Every child is unitary and unique. Never before and never again can the exact conditions be reproduced for the evolution of the same being.

"A child is considered normal physically when he does not reveal any pathologic disturbances that interfere with his functional integrity or with his pattern of growth development. It is a negative definition expressed in terms of the abnormal because we have more knowledge of disease than of well being.

"Clinically, it is practical to classify children in two extreme groups that define a wide range of norm for any one child. * * * The one is dynamic and thin, and the other static and fat."

THE HOSPITAL OUTLOOK IN WEST VIRGINIA*

By JAMES MCCLUNG, M. D.
Richwood, W. Va.

The Hosptial Association of West Virginia is a movement in the right direction, and its success and destiny depend upon organization. The object is to benefit and strengthen our own position from a business and financial standpoint, the result of which will be handed down to the general public from a humane standpoint, and whether our efforts work out for good or evil the intention is that it redowns to the benefit of humanity as a whole.

There are two objectives we should concentrate on during the next year:

First. Legislation that will place all hospitals in the state on the same plane with regard to taxation; namely, church, charitable and voluntary, for the reason that more than one-third of the hospitals in West Virginia are exempt from taxation. The voluntary hospitals, although organized and incorporated for profit, contribute to charity in proportion equal to or in excess of the charitable, religious or municipal hospitals operated in West Virginia, and it is unfair that they should be taxed in addition thereto. Therefore, the Hospital Association of West Virginia as a whole should approve and support such legislation.

Second. The state should assume and provide for hospital care of all indigent cases and last, but not least, should provide that hospitals be remunerated for all automobile accidents where the victim does not carry protection and is unable to pay for emergency care.

If the Hospital Association of West Virginia can accomplish the enactment of the legislation referred to, it will have gone a long way toward relieving the financial burden of the hospitals of the state, as well as accomplishing the purpose of all hospitals —the relief of suffering.

The unemployed man finds it difficult and hard these days to pay for medical care, and the result —our voluntary hospitals, which in 1933 cared for 70 per cent of all hospital patients in the United States, show on their books practically half of their service given free to the needy sick and injured. Since 1929, hospitals and nursing organizations

*Address before The Hospital Association of West Virginia, Morgantown, October 5, 1934.

have suffered marked reductions in earnings from patients, charitable contributions and endowment incomes. Ledgers must balance and the question now is how much longer these vital humanity-serving agencies can survive. Will they be forced to cease serving "the sick without money" and, if so, what then?

Hospital and nursing organizations supported by local tax budgets find them wholly inadequate to meet the present emergency.

We cannot expect the people of our communities to solve their own problems of self-support if they are denied the help of voluntary hospitals and nursing services during the present crisis.

Successfully applied group hospitalization may do much to reduce the percentage of those who are not normally in position to defray expenses incident to hospitalization, and any such plan is worthy of serious study by those charged with the responsibility of financing the work of voluntary hospitals.

In suggesting the possibility of federal aid as a source of income for the voluntary hospitals of this country, I realize that I am referring to something which has been traditionally contrary to the policy of the United States government. Moreover, the recent experience which hospitals have undergone in their efforts to clarify their status under the "New Deal" may be interpreted by some as an indication that no change in this traditional federal policy can be hoped for despite the emergency which exists.

The FERA will not help. It is well known that although the payment for care of indigent patients in hospitals has been made in some states, the FERA has refused consistently to permit its funds to be used by state or public organizations for the care of indigent welfare patients in hospitals.

The public apathy toward hospitals is costing the lives of 50,000 men, women and children in the United States every year, according to the opinion expressed by Matthew O. Foley, director of the magazine *Hospital Management*.

The work of the hospitals of the country must go on. The demand for their services is ever present. The need of proper hospital facilities is becoming more and more every day. We are not lacking in sympathy, brotherly love and charity, but the great question is how can we keep on financially when the sick and injured are becoming less able to pay. Endowments become smaller and smaller each year, taxes have burdened those who have and are able to pay taxes to the breaking point. The doctors have given their services gratis in many cases. The nurses have stood by and rendered their services to the sick, injured and dying without any thought of remuneration.

There is apathy on the part of the general public, and especially on the part of the members of the legislature of West Virginia, both in the House and Senate. This is what I want to stress—every hospital in West Virginia should see to it that the representatives in the next session of the legislature be appraised of the serious condition, and humanity's demand upon the people of West Virginia as a whole, and that they at least take their oath of office with a feeling of sympathy toward the work the hospitals of West Virginia are doing and trying to accomplish and not with the feeling of antagonism.

If provision can be made whereby the hospitals will all be relieved of taxation and some provision made whereby the victims of automobile accidents will be assured proper care without throwing all of the responsibility on the hospitals, I feel that the hospital association will have accomplished something worth while this year.

However, it is absolutely necessary that the association employ a competent full time secretary, as it is impossible for the organization to carry out its plans without some one on the ground all the time. The executive committee will submit to all hospitals a plan whereby this may be accomplished and their coöperation is most earnestly desired.

WEST VIRGINIANS HONORED

The following West Virginia doctors became members of the American College of Surgeons at the meeting held in Boston recently:

Dr. W. P. Black, Charleston; Dr. Carl J. Carter, Fairmont; Dr. V. T. Churchman, Jr., Charleston; Dr. Roland H. Edwards, Welch; Dr. Oscar H. Fulcher, Welch; Dr. Russel Kessel, Charleston; Dr. Harry McGrath, Montgomery; Dr. J. E. McKenzie, Beckley; Dr. R. A. Salton, Williamson; Dr. Harry V. Thomas, Fairmont; Dr. George H. Traugh, Fairmont; Dr. Wirt B. Wilson, Charleston; Dr. C. B. Wright, Huntington.

WOMEN'S AUXILIARY

HARRISON COUNTY

The Auxiliary to the Harrison County Medical Society met at the Stonewall Jackson Hotel on November 1, 1934. Mrs. R. S. Coffindaffer, president, presided.

Mrs. Hannard, superintendent of the Girls' Industrial Home, spoke to the Auxiliary about the work being done for delinquent girls at the institution and Mrs. H. H. Esker reported her visit to the state Reform School for Boys at Pruntytown.

Mrs. M. F. Petersen, state president, and Mrs. V. E. Holcombe, state program chairman, were guests of honor of the Auxiliary. Mrs. Petersen spoke to the members about the purposes of a medical auxiliary.

The regular business session of the Auxiliary was postponed until the next meeting which will be held on December 6, 1934.

MRS. H. H. ESKER, *News Reporter.*

TRI-COUNTY AUXILIARIES

The Harrison, Marion and Monongalia County Auxiliaries met at the Fairmont Hotel for six o'clock dinner on October 30, 1934, at Fairmont, W. Va. A group of forty, comprised of members of the three auxiliaries, were present together with the state president, Mrs. M. F. Petersen and Mrs. V. E. Holcombe, state chairman of program committee. Mrs. A. H. Stevens, president of the Marion County Auxiliary, presided.

During the meeting Mrs. Petersen spoke to the Auxiliaries concerning the aim of the Auxiliary and the work it hopes to accomplish during the current year. Mrs. Holcombe offered many valuable suggestions for their monthly programs and also indicated sources from which program material could be obtained.

The meeting was stimulating and worthwhile and through the informal conferences with the two state officers the auxiliary members received ideas, inspiration and enthusiasm for the year's work in their respective counties.

Other state officers present were:

Mrs. E. B. Tucker, second vice president; Mrs. C. C. Romine, treasurer; Mrs. R. S. Coffindaffer, Hygeia chairman; Mrs. F. V. Langfitt, immediate past president; Mrs. A. H. Stevens, parliamentarian.

BEATRICE GOULD THOMAS, *News Reporter.*

KANAWHA COUNTY

The Kanawha County Medical Society Auxiliary held its November meeting on Tuesday, the thirteenth, at the Zimmergarten. Mrs. O. H. Bobbitt, president, presided over the thirty-four members who were present.

During the meeting Dr. Claude B. Smith addressed the group, his subject being "Revolutionary Treatment of Infantile Paralysis." Mrs. Robert B. Price also addressed the meeting on "The Importance of Hygeia Magazine." Following these two addresses Mrs. A. A. Wilson gave a report of the proceeds obtained from the benefit bridge party given by the Auxiliary on October 29 at the Appalachian club rooms. The proceeds from the party are to be used to place *Hygeia* in all junior and senior high schools in the county and in the five training schools for nurses in the city.

A legislative session was called to order to nominate a successor for Mrs. D. N. Barber who has resigned as first vice president. Mrs. Peter A. Haley, III, was appointed chairman of public relations committee and Mrs. R. E. Woodall was appointed legislative chairman.

MRS. J. E. RUCKER, *News Reporter.*

CABELL COUNTY

The November meeting of the Cabell County Medical Society Auxiliary was held at the home of Mrs. Edward Rose. Mrs. Gilbert A. Ratcliff, president, presided over the meeting. Mrs. William Neal spoke to the members about her experiences while in Mexico City. During the business session it was decided to whom scholarship fund loans should be made.

The next meeting of the Auxiliary will be held on December 10, 1934.

ELIZABETH G. ROBINSON, *News Reporter.*

SCIENTIFIC EXHIBITS

Application blanks are now available for space in the scientific exhibit at the Atlantic City session of the American Medical Association, June 10-14, 1935. The committee on scientific exhibit requires that all applicants fill out the regular application form and requests that this be done as early as convenient. Applications close February 25, 1935.

Persons desiring application blanks should address a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

INDEX TO VOLUME XXX

THE WEST VIRGINIA MEDICAL JOURNAL

A

Agranulocytic Angina: Report of Cases—R. O. Rogers, M. D., and M. W. Sinclair, M. D. 490
Anemia, Primary Hypochromic (Hypoferrism) III—William Dameshek, M. D. 193
Antirabic Treatment, Unfavorable Reactions Due to—F. C. Hodges, M. D. 106
Appendicitis, Acute—Wm. R. Laird, M. D. 393
Arterial Hypertension—Thomas P Sprunt, M. D. 28
Aycock, W. Lloyd, M. D.—Autarceology of Poliomyelitis 481

B

Bailey, Russell, B., M. D.—Phrenicotomy in the Treatment of Pulmonary Tuberculosis 56
Banks, Bankhead, M. D.—The Treatment of Hemorrhoids and Pruritis Ani 122
Barach, Alvin L., M. D.—The Clinical Significance of Oxygen Therapy 64
Barber, D. N., M. D.—Influenza 18
Barber, D. N., M. D.—Silicosis 310
Barber, T. M., M. D.—Scarlet Fever 209
Barksdale, G. H., M. D.—Hypertensive Heart Disease 256
Beckner, W. F., M. D.—Uveitis 169
Beinhauer, L. G., M. D.—Urticaria Following the Use of Dinitrophenol 466
Bland, P. Brooke, M. D.—Fetal Birth Injuries With Special Reference to Intracranial Lesions 9
Blanton, J. L., M. D.—The Diagnosis and Treatment of Acute Poliomyelitis 403
Bloss, J. R., M. D.—The Obstetric Application of Surgical Progress 337
Bonar, Martin L., M. D.—Practical Skin Therapy 64
Bronchoscopy—The Diagnosis and Treatment of Some Conditions Requiring Bronchoscopy—V. A. Williams, M. D. 358
Browder, Jefferson, M. D.—Fractures of the Spinal Column 497

C

Cannaday, John E., M. D.—Some Personal Experiences in Gall-Bladder Surgery 248
Cancer Cells—Do the Normal Cells Change to Cancer Cells Under Hormonal Influence? —Philip Jaisohn, M. D. 414
Cancer of the Breast—R. J. Wilkinson, M. D. 348
Cardiac Conditions, A Review of the Etiology and Pathology of Various—Clement C. Fenton, M. D. 539
Cardiac Disease—W. V. Wilkerson, M. D. 162
Child Hygiene in a Coal Mining Camp—George Fordham, M. D. 408
Cholesteatoma—With Case Report of a Bilateral External—A. P. Hudgins, M. D. 114
Coronary Thrombosis—J. P. Mullen, M. D. 1
Chronic Suppurative Otitis Media—Jesse W. Downey, Jr., M. D. 97
Churchman, V. T., Sr., M. D.—Keeping Young 277
Cisterna Magna Puncture—Richard B. Easley, M. D. 411
Code—What of our Code—Albert H. Hoge, M. D. 452
Convention Program 237
Convention Transactions 322
Cord Clamp, The Umbilical—Thomas W. Nale, M. D. 128
Coronary Disease—G. R. Maxwell, M. D. 385
Cross-Eyed Child, The Problem of the—Luther C. Peter, M. D. 530
Cross Roads in Medicine—Russell S. Wolfe, M. D. 260

D

Dameshek, William, M. D.—Primary Hypochromic Anemia (Hypoferrism) III 193
Daniel, Gilbert, M. D.—Scarlet Fever Immunization with a Scarlet Fever Toxoid 212
Downey, J. W., Jr., M. D.—Chronic Suppurative Otitis Media 97

E

Easley, Richard B., M. D.—Cisterna Magna Puncture 411
Estrin Reactions in Husbands of Pregnant Women—Ray I. Frame, M. D. 228
Extragenital Chancres—Howard T. Phillips, M. D., and W. J. Morginson, M. D. 363

F

Farrier, R. C., M. D.—Immunizations and Vaccines 20
Fenton, Clement C., M. D.—A Review of the Etiology and Pathology of Various Cardiac Conditions 539
Fetal Birth Injuries with Special Reference to Intracranial Lesions—P. Brooke Bland, M. D. 9
Fitzhugh, W. D., M. D.—Syphilitic Hemiplegia with Report of Case 548
Fordham, George, M. D.—Child Hygiene in a Coal Mining Camp 408
Fox, P. R., M. D.—Syphilitic Hemiplegia with Report of Case 548
Fractures of the Spinal Column—Jefferson Browder, M. D., and Theodore Miner, M. D. 497
Frame, Ray I., M. D.—Estrin Reactions in Husbands of Pregnant Women 228
Franklin, Joseph P., M. D.—The Relationship Between the Practicing Physician and the Public Health Department 222

G

Gall-Bladder Disease, The Prophylaxis of—George F. Grisinger, M. D. 357
Gall-Bladder—Personal Experiences in Gall-Bladder Surgery—John E. Cannaday, M. D. 248
Gay, Leslie N., M. D.—Hay Fever—Methods of Treatment 366
Goodman, Sylvester J., M. D.—The Treatment of Postpartum Hemorrhage 78
Grisinger, George F., M. D.—The Prophylaxis of Gall-Bladder Disease 357
Gynecologic Problems—Diagnosis and Office Treatment of the More Common Gynecologic Problems—J. H. Steenbergen, M. D. 267

H

Hall, Sobisca S., M. D.—Nasal Mechanics 175
Hall, Sobisca S., M. D.—Sinusitis and Its Complications with a Few Related Dental Problems 550
Hawk, Fabry L.—Cerebrospinal Meningitis, Case Report 564
Hay Fever—Methods of Treatment—Leslie N. Gay, M. D. 366
Head Injuries, The Management of Acute—Archer A. Wilson, M. D. 71
Heart Disease, Hypertensive—G. H. Barksdale, M. D. 256
Heart Pathology, Consideration of—Ivan H. Smith, M. D. 272
Hemiplegia, Syphilitic with Report of Case—W. D. Fitzhugh, M. D. and P. R. Fox, M. D. 548
Hemorrhoids—Treatment of Hemorrhoids and Pruritis Ani—Bankhead Banks, M. D. 122
Hemorrhage, The Treatment of Postpartum—Sylvester J. Goodman, M. D. 78
Hoge, Albert H., M. D.—What of our Code? 452
Hodges, F. C., M. D.—Unfavorable Reactions Due to Antirabic Treatment 106
Hudgins, A. P., M. D.—Cholesteatoma—With Case Report of a Bilateral External Cholesteatoma 114
Hudgins, A. P., M. D.—Ultraviolet in the Post-Operative Treatment of Radical Mastoidectomies 265
Humphrey, Edwin J., M. D.—Prenatal Care 416

I

Immunizations and Vaccines—R. C. Farrier, M. D. 20
Infant Mortality Studies in West Virginia—George M. Lyon, M. D. 289
Infections of the Blood Stream—R. M. Wylie, M. D. 49
Influenza—D. N. Barber, M. D. 18
Insane, Sane Hospitalization and Treatment of the—J. E. Offner, M. D. 534

J

Jaisohn, Philip, M. D.—Do the Normal Cells Change to Cancer Cells Under Hormonal Influence? 414

K

Keeping Young—V. T. Churchman, Sr., M. D. 277
Kemper, A. J., M. D.—An Appeal for Better Sanitation 218

L

Laird, Wm. R., M. D.—Acute Appendicitis 393
Lepper, D. B., M. D.—Mercer County Health Activities 225
Lesions—The Surgical Treatment of Benign and Malignant Lesions of the Stomach and Duodenum—William B. Morrison, M. D. 444
Leslie, G. L., M. D.—Collapse Therapy in the Treatment of Pulmonary Tuberculosis 543
Lutz, Athey R., M. D.—Progressive Pseudohypertrophic Muscular Dystrophy 463
Lyon, George M., M. D.—The Acute Cerebral Complications of "Nephritis". 255
Lyon, George M., M. D.—Infant Mortality Studies in West Virginia 289

M

Mastoidectomies—Ultraviolet in the Post-Operative Treatment of Radical Mastoidectomies—A. P. Hudgins, M. D. 265
Medical Service—A Professional Service—Olin West, M. D. 439
Meningitis, Cerebrospinal, Case Report—Bobb Spalding Spray, Ph. D. and Fabry L. Hawk 564
Miller, Roy Ben, M. D.—President's Annual Address 241
Miner, Theodore, M. D.—Fractures of the Spinal Column 497
Moore, J. M., M. D.—Osteoporosis Following Trauma 22
Morginson, W. J., M. D.—Extragenital Chancres 363
Morrison, W. B., M. D.—The Surgical Treatment of Benign and Malignant Lesions of the Stomach and Duodenum 444
Mullen, J. P., M. D.—Coronary Thrombosis 1
Muscular Dystrophy, Progressive Pseudohypertrophic—Athey R. Lutz, M. D. 463

N

Nale, T. W., M. D.—The Umbilical Cord Clamp 128
Nasal Mechanics—S. S. Hall, M. D., and H. V. Thomas, M. D. 175
Nasal Obstruction—Wes C. Thomas, M. D. 214
"Nephritis", The Acute Cerebral Complications of—George M. Lyon, M. D. 255
Neuroses, The Mechanism and Treatment of the—Irving J. Spear, M. D. 342

O

Obstetric Application of Surgical Progress—James R. Bloss, M. D. 337
Occiput Posterior Presentations—Their Diagnosis and Treatment—W. W. Point, M. D. 399
Offner, J. E., M. D.—Sane Hospitalization and Treatment of the Insane 534
Osteoporosis Following Trauma—J. M. Moore, M. D. 22
Osterman, A. L., M. D.—The Psychoneuroses 433
Oxygen Therapy, The Clinical Significance of—Alvin L. Barach, M. D. 145

P

Pellagra, A Short Review of Certain Aspects of—W. H. Ribeldaffer, M. D. 60
Peter, Luther C., M. D.—The Problem of the Cross-Eyed Child 530
Phillips, Howard T., M. D.—Extragenital Chancres 363
Podolsky, Edward M. D.—Strophanthus 560
Point, Walter W., M. D.—Occiput Posterior Presentations—Diagnosis and Treatment 399
Poliomyelitis, Autarceology of—W. Lloyd Aycock, M. D. 481
Poliomyelitis, The Diagnosis and Treatment of Acute—J. L. Blanton, M. D. 403
Prenatal Care—Edwin J. Humphrey, M. D. 416
President's Annual Address—Roy Ben Miller, M. D. 241
Preston, D. G., M. D.—Rocky Mountain Spotted Fever, Eastern Type 119
Psychiatry, Historical Outline of—R. R. Summers, M. D. 511
Psychoneuroses, The—A. L. Osterman, M. D. 433

R

Ramsey, R. A., M. D.—Some Medical Aspects of Thyroid Disease 457
Reed, T. G., M. D.—Syphilis From the Standpoint of the General Practitioner 352
Relationship Between the Practicing Physician and the Public Health Department—Joseph P. Franklin, M. D. 222
Riheldaffer, W. H., M. D.—A Short Review of Certain Aspects of Pellagra 60
Rocky Mountain Spotted Fever, Eastern Type—D. G. Preston, M. D. 119
Rogers, R. O., M. D.—Agranulocytic Angina: Report of Cases 490
Rohr, J. U., M. D.—Syphilis From the Standpoint of the General Practitioner 508

S

Sanitation—An Appeal for Better Sanitation—A. J. Kemper, M. D. 218
Scarlet Fever—T. M. Barber, M. D. 209
Scarlet Fever Immunization with a Scarlet Fever Toxoid—Gilbert Daniel, M. D. 212
Scott Francis, A., M. D.—Soft Tissue Injuries Frequently Associated with Fractures of the Long Bones 154
Silicosis—Daniel N. Barber, M. D. 310
Sinclair, M. W., M. D.—Agranulocytic Angina: Report of Cases 490
Sinusitis and Its Complications with a Few Related Dental Problems—Sobisca S. Hall, M. D. and Harry V. Thomas, M. D. 550
Skin—Practical Skin Therapy—Martin L. Bonar, M. D. 64
Smith, A. A., M. D.—Case Report—Tetanus 517
Smith, Ivan H., M. D.—Considerations of Heart Pathology 272
Soft Tissue Injuries Frequently Associated With Fractures of the Long Bones—Francis A. Scott, M. D. 154
Spear, Irving J., M. D.—The Mechanism and Treatment of the Neuroses 342
Spray, Bobb Spalding, Ph. D.—Cerebrospinal Meningitis, Case Report 564
Sprunt, T. P., M. D.—Arterial Hypertension 28
Steenbergen, J. H., M. D.—Diagnosis and Office Treatment of the More Common Gynecologic Problems 267
Strophanthus—Edward Podolsky, M. D. 560
Syphilis From the Standpoint of the General Practitioner—J. U. Rohr, M. D. 508
Syphilis From the Standpoint of the General Practitioner—T. G. Reed, M. D. 352
Summers R. R., M. D.—Historical Outline of Psychiatry 511

T

Tetanus—Case Report—A. A. Smith, M. D. 517
Thomas, Harry V., M. D.—Nasal Mechanics 175
Thomas, Harry V., M. D.—Sinusitis and Its Complications with a Few Related Dental Problems 550
Thomas, Wes C., M. D.—Nasal Obstruction 214
Thyroid—Some Medical Aspects of Thyroid Disease—R. A. Ramsey, M. D. 457
Tuberculosis, Collapse Therapy in the Treatment of Pulmonary—G. L. Leslie, M. D. 543
Tuberculosis—Phrenicotomy in the Treatment of Pulmonary Tuberculosis—Russell B. Bailey, M. D. 56

U

Urticaria Following the Use of Dinitrophenol—L. G. Beinhauer, M. D. 466
Uveitis—Wm. F. Beckner, M. D. 169

W

West, Olin, M. D.—Medical Service—A Professional Service 439
Wilkerson, W. V., M. D.—Cardiac Disease 162
Wilkinson, R. J., M. D.—Cancer of the Breast 348
Williams, Victor A., M. D.—The Diagnosis and Treatment of Some Conditions Requiring Bronchoscopy 358
Wilson, Archer A., M. D.—The Management of Acute Head Injuries 71
Wolfe, Russell S., M. D.—Cross Roads in Medicine 260
Wylie, R. M., M. D.—Infections of the Blood Stream 49

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TABLE OF CONTENTS ON PAGE XXXIV

Christmas Greetings

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IN THIS ISSUE:

Dr Luther C Peter—The Cross-Eyed Child
Dr. J. E. Offner—Treatment of the Insane
Dr. Clement C. Fenton—Cardiac Conditions
Dr. G. L. Leslie—Pulmonary Tuberculosis
Dr. W. D. Fitzhugh and Dr. P. R. Fox—Syphilitic Hemiplegia
Dr. Sobisca S. Hall and Dr. Harry V. Thomas—Sinusitis
Dr. Edward Podolsky—Strophanthus

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